Uniform Medical Plan coverage limits

Updates effective 09/01/2022

The benefit coverage limits listed below apply to these UMP plans:

- Uniform Medical Plan (UMP) Classic (PEBB)
- UMP Select (PEBB)
- UMP Consumer-Directed Health Plan (UMP CDHP) (PEBB)
- UMP Plus–Puget Sound High Value Network (UMP Plus–PSHVN) (PEBB)
- UMP Plus–UW Medicine Accountable Care Network (UMP Plus–UW Medicine ACN) (PEBB)
- UMP Achieve 1 (SEBB)
- UMP Achieve 2 (SEBB)
- UMP High Deductible Plan (SEBB)
- UMP Plus–Puget Sound High Value Network (UMP Plus–PSHVN) (SEBB)
- UMP Plus–UW Medicine Accountable Care Network (UMP Plus–UW Medicine ACN) (SEBB)

Some services listed under these benefits have coverage limits. These limits are either determined by a Health Technology Clinical Committee (HTCC) decision or a Regence BlueShield medical policy. The table below does not include every limit or exclusion under this benefit. For more details, refer to your plan’s Certificate of Coverage.

Uniform Medical Plan Pre-authorization List

The Uniform Medical Plan (UMP) Pre-authorization List includes services and supplies that require pre-authorization or notification for UMP members.
Pharmacy

UMP has a separate vendor – Washington State Rx Services – for the prescription drug benefit. Pre-authorization is necessary for certain injectable drugs that are not normally approved for self-administration when obtained through a retail pharmacy or a network mail-order pharmacy. These drugs are indicated on the UMP Preferred Drug List.

Drugs usually payable under the member's medical benefit will continue with the same Regence process.

Medications in blue = HTCC decision followed for UMP members, found at: http://www.hca.wa.gov/assets/program/ha_final_findings_decision[1].pdf

Medications in green = HTCC decision followed for UMP members when the diagnosis is chronic migraine as of 01/01/18, found at: https://www.hca.wa.gov/assets/program/chronic-migraine-final-findings-decision-REVISED-20180720_0.pdf

Medications in orange do not yet have policies created, but still require prior authorization = Falls under the New to Market policy dru517

Infusion Drug Site of Care

Certain provider administered infusion medications covered on the medical benefit are subject to the Site of Care Program (dru408) medication policy. This policy does not apply to members covered under UMP Plus plans.
### Active Medical Drug Prior Authorization List

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1 Includes Asceniv, Blivigam, Carimune, Cutaquig, Flebogamma, Gammagard S/D, Gammagard, Gammaplex, Gamunex-C, Gammaked, Hizentra, HyQvia, Octagam, Panzyga, Privigen, Xembly

September 1, 2022  These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Medication Policy Manual

**Topic:** Botulinum toxin type A injection:
- Botox (onabotulinumtoxinA)
- Dysport (abobotulinumtoxinA)
- Xeomin (incobotulinumtoxinA)

**Date of Origin:** January 1996

**Committee Approval Date:** April 22, 2020

**Effective Date:** May 15, 2020

**Next Review Date:** January 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Botulinum toxin is a neurotoxin that is injected into a muscle to cause temporary paralysis or relaxation of that muscle. There are three commercial botulinum toxin type A products available: Botox (onabotulinumtoxinA), Dysport (abobotulinumtoxinA), and Xeomin (incobotulinumtoxinA). Botulinum toxin type B (rimabotulinum, Myobloc) is covered in a separate policy.
Policy / Criteria

Most contracts require pre-authorization approval of botulinum toxin type A prior to coverage.

I. **Continuation of therapy (COT):** botulinum toxin type A (Botox, Dysport, Xeomin) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A. and B. below are met.

A. The patient is established on this therapy AND one of the following situations applies (criteria 1., 2., or 3 below):

1. Any potentially cosmetic indications, including **hyperhidrosis**, may be coverable when full policy criteria below are met, including reauthorization criteria and quantity limit.

OR

2. Prior to current health plan membership AND the medication was covered by another health plan.

*Note: If the diagnosis is not listed in the coverage criteria below, written documentation of coverage must be provided, such as an approval letter or paid claim.*

OR

3. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.

AND

B. If the diagnosis is not listed in the coverage criteria below OR is considered potentially cosmetic, documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria, is provided.

**Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does **NOT** necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

OR

II. **New starts (treatment-naïve patients):** Botulinum toxin type A (Botox, Dysport, Xeomin) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes), that criteria A or B below are met:

A. **Dystonia or Spastic conditions,** due to one of the following diagnoses:

1. **Cerebral Palsy**

2. **Cervical dystonia with torticollis** with documentation of involuntary contractions of the neck muscles resulting in twisting and repetitive movements, and/or abnormal postures (as documented on physical exam).
3. **Demyelinating diseases of CNS**, including, but not limited to, central
demyelinating of corpus callosum, leukodystrophy, multiple sclerosis
(MS), neuromyelitis optica (NMO), Schilder's disease.
4. **Dysphonia**, including spasmodic dysphonia, laryngeal spasm; laryngeal
adductor spastic dysphonia, or stridulus
5. **Facial nerve disorders** (such as blepharospasm, facial/hemifacial
spasms, facial nerve VII disorders, facial myokymia, Melkersson
syndrome)
6. **Focal upper limb/hand dystonia** (such as Organic writer's cramp)
7. **Lower limb spasticity** (including increased muscle tone in the ankle
and toes)
8. **Oromandibular dystonia** (such as orofacial dyskinesia, jaw closure
dystonia, Meige syndrome)
9. **Spastic hemiplegia or paraplegia** [including hereditary, related to a
stroke (CVA), or related to a spinal cord injury (SCI)]
10. **Torticollis, spasmatic or unspecified**, with documentation of
involuntary contractions of the neck muscles resulting in twisting and
repetitive movements, and/or abnormal postures
11. **Torsion dystonia** [including both symptomatic (acquired) or idiopathic
( primary or genetic; a.k.a. Oppenheim’s dystonia)]
12. **Upper limb spasticity**

**B. Strabismus**, resulting in vision changes

**III.** Botulinum toxin A (Botox, Dysport, Xeomin) may be considered medically necessary
when there is clinical documentation (including, but not limited to chart notes) for the
diagnoses listed below, when one of the following criteria A through I. below is met.

There is a diagnosis of:

**A. Anal fissures**, when prior treatment with one or more therapeutic alternatives,
such as nitroglycerin ointment or diltiazem cream, has been ineffective, not
tolerated, or is contraindicated.

**B. Congenital aganglionic megacolon (Hirschsprung disease)**, with
documented constipation due to increased anal sphincter tone **and** when prior
treatment with bowel regimen for constipation has been ineffective, not
tolerated, or is contraindicated.

**C. Endoscopically-administered botulinum**, when criteria 1 and 2 below is met:

1. An upper gastrointestinal diagnosis such as (but not limited to)
dysphagia, gastroparesis, or achalasia/cardiospasm (primary)

   **AND**

2. Documented symptoms despite use of standard therapies, such as:
   a. Dysphagia: diet modification (such as smaller meals, softer foods),
      and/or occupational therapy.
b. Gastroparesis: diet modification, promotility medications, such as metoclopramide, cisapride, erythromycin, or removal/reduction of underlying etiology (such as taper of opioids).

c. Achalasia/cardiospasm (primary): dilation therapy, unless the patient is considered a poor surgical candidate.

D. Hyperhidrosis (including axillary, palmar and gustatory hyperhidrosis), when BOTH criteria 1 and 2 below are met:

1. The hyperhidrosis is documented as persistent and severe.

AND

2. The hyperhidrosis has resulted in a significant medical complication including a, b, or c:

   a. Skin maceration with secondary infection requiring anti-infective treatment (antibiotics or antifungals).

   OR

   b. Persistent eczematous dermatitis, despite use of topical treatment or systemic anticholinergics.

   OR

   c. Pain and/or functional impairment due to hyperhidrosis and documentation of inability to perform critical activities of daily living (such as impaired grip and writing ability for employment, or impaired walking).

NOTE: Medical treatment of persistent hyperhidrosis is considered not medically necessary in the absence of significant medical complications associated with the condition. Skin irritation, skin maceration without secondary infection, need for frequent changing of clothing, or psychosocial distress are not considered to be significant medical complications.

E. Migraine headache, chronic and severe, when ALL THREE (3) of the criteria in 1, 2, and 3 below are met:

1. A neurologist or headache specialist has thoroughly evaluated the member and has established and documented a diagnosis of chronic migraine headaches, using the Revised International Headache Society (IHS) criteria for chronic migraine. (See Appendix I)

AND

2. There is objective documentation of both criteria a and b below:

   a. The patient has 15 or more severe headache days per month of which at least 8 are migraines, based on a headache diary OR chart notes, documenting migraine frequency, severity and characteristics.
AND

b. An evaluation has been performed to assess for rebound headaches caused by medication use [medication overuse headache (MOH)]. A documented plan is in place to address medication overuse, if MOH is identified. Medications that may be associated with rebound headache include, but are not limited to, more than 12 doses per month of narcotics, triptans, caffeine, and NSAIDs.

AND

3. Documentation that adequate trials of at least THREE prophylactic therapies, as specified in criteria a, b, c, and d below were either ineffective, not tolerated, or are contraindicated:

a. Topiramate OR divalproex sodium (Depakote). OR
b. A beta blocker (such as propranolol, metoprolol, or atenolol). OR
c. Venlafaxine OR a tricyclic antidepressant (such as amitriptyline or nortriptyline). OR
d. Calcitonin gene-related peptide (CGRP) monoclonal antibody [such as erenumab (Aimovig), galcanezumab (Emgality), or fremanezumab (Ajovy)] used for prophylaxis.

NOTE: CGRPs used for acute abortive therapy [rimegepant (Nurtec ODT), ubrogepant (Ubrelve)] are not included in this criterion.

F. Pelvic floor dysfunction (such as due to levator spasm, pelvic floor spasm), when criteria 1 and 2 below are met:

1. Documented pain and/or functional impairment associated with the pelvic floor dysfunction, such as pelvic pain, vaginismus, and/or dyspareunia.

AND

2. Prior treatment with another treatment option for pelvic floor dysfunction (such as physical therapy, muscle relaxants, trigger point injections, surgery) has been ineffective, not tolerated, or is contraindicated.

G. Raynaud’s syndrome or systemic sclerosis-associated digital ulcers, when criteria 1 and 2 below is met:

1. Documented pain and/or functional impairment associated with the vasoasmpasm and/or digital ulcers.

AND

2. Prior treatment with a dihydropyridine calcium channel blocker (such as amlodipine, nifedipine) or another vasodilator (such as topical
nitroglycerin, a phosphodiesterase type 5 inhibitor, or an angiotensin II receptor blocker) has been ineffective, not tolerated, or is contraindicated.

H. Sialorrhea (drooling).

I. Urinary incontinence, due to detrusor overactivity [idiopathic or neurogenic (e.g. due to spinal cord injury, multiple sclerosis) or overactive bladder (OAB)], when therapy with anticholinergic agents is ineffective or not tolerated.

IV. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider botulinum toxin type A to be a self-administered medication.

B. For hyperhidrosis and migraines ONLY: When pre-authorization is approved, botulinum toxin type A may be authorized in quantities as follows:
   1. **Initial Authorization:**
      a. up to 2 injection treatments within a 24-week period.
      b. Documentation (including, but not limited to chart notes), of objective clinical response is necessary for continued authorization for treatment of hyperhidrosis and migraine headaches (criteria F and G).
   2. **Re-authorization:**
      a. After the initial authorization, up to 4 injection treatments over a 48-week period may be considered medically necessary if objective measures support clinical benefits from treatment.
      b. Coverage **may** be reviewed at least every 12 months to confirm that current medical necessity criteria are met and that the medication is effective, defined as sustained clinical improvement from reduced symptoms (such as pain and functional impairment).
   3. Use in excess of 4 doses in a 48-week period is considered not medically necessary.

C. For all other conditions (except as listed in B. above):
   1. When pre-authorization is approved, botulinum toxin type A may be authorized in quantities up to 4 injection treatments within a 48-week period.
   2. **Reauthorization:** Coverage **may** be reviewed at least every 12 months to confirm that current medical necessity criteria are met and that the medication is effective, defined as sustained clinical improvement from reduced symptoms (such as pain and functional impairment).
   3. Additional treatments may be authorized on a case by case basis if documentation of objective measures supporting the need for more frequent dosing are provided.

V. Botulinum toxin type A is considered not medically necessary for skin wrinkles or other cosmetic indications.
VI. Botulinum toxin type A is considered investigational for all other indications, including, but not limited to:

A. Allergic rhinitis
B. Benign prostatic hyperplasia
C. Congenital talipes equinovarus (clubfoot)
D. Dermatochalasis (excessive eyelid skin, “baggy eyes”)
E. Dry eye disease
F. Headache, non-migraine (e.g. chronic daily, tension, cluster)
G. Interstitial cystitis
H. Low back pain (LBP)
I. Medication overuse headache (MOH)
J. Motor tic disorder, chronic (including Tics associated with Tourette syndrome)
K. Myofascial pain
L. Nerve entrapment or compression syndromes, other (those not listed in Section I. above; such as brachial plexus injury, carpal tunnel syndrome Piriformis syndrome, thoracic outlet syndrome)
M. Obesity
N. Osteoarthritis (OA)-related pain, including of the knee
O. Plantar fasciitis pain
P. Temporomandibular dysfunction (TMJ), bruxism, and/or masseter muscle spasm.
Q. Tennis elbow (lateral epicondylitis)
R. Tremors [e.g. essential (benign) tremor, Parkinson’s disease-related tremor]

Position Statement

- There are three botulinum toxin type A products available (abobotulinumtoxinA, incobotulinumtoxinA, and onabotulinumtoxinA) that all work by inhibiting the release of acetylcholine from peripheral cholinergic nerve endings, thereby blocking the cholinergic transmission.

- The intent of this policy is to allow coverage for specific diagnoses where there is demonstrated safety and efficacy from clinical trials to support their use, including spasmodic conditions, and other specific indications. Coverage for hyperhidrosis is allowed when there is documentation the condition is persistent and severe and has resulted in significant medical complications. Coverage for migraine indications is allowed when lower-cost standard of care treatment alternatives are not effective.

- There is insufficient evidence to establish that one botulinum toxin A product is more effective at comparable doses.

- Botulinum toxin type A products are all produced using different methods, so their dosing and potencies are not the same (the number of units of one botulinum toxin type A product cannot be converted to units of another product).

- Conditions for which use of botulinum toxin type A may be considered medically necessary are based on evidence supported by well-designed randomized controlled trials.
The evidence for use of botulinum toxin type A in chronic migraine headache is inconsistent. Use should be reserved for those who have exhausted all other treatment options.

Use of botulinum toxin (all serotypes) for treatment of wrinkles or other cosmetic conditions is considered not medically necessary.

Botulinum toxins (type A and type B) are being investigated in many different conditions where muscle tension is thought to play a role. The quality of evidence from the majority of these studies is poor because they lack controls, are not randomized or blinded, and only involve small numbers of subjects.

Summary

**CLINICAL EFFICACY**

Endoscopically-administered botulinum: Achalasia (primary), Gastroparesis, and Dysphagia  
- Achalasia is an esophageal motility disorder, also known as cardiospasm, which results in increased lower esophageal sphincter tone, difficulty swallowing, and sometimes regurgitation and chest pain. [1]
- Pneumatic dilation is the preferred medical treatment option for primary achalasia. [2]
- One Cochrane review concluded that pneumatic dilation produces a higher remission rate at 6 and 12 months compared to botulinum toxin. [1]
- Standard therapies for gastroparesis include diet modification (smaller meals, more frequent meals, exacerbating food avoidance), use of promotility medications, (metoclopramide, cisapride, erythromycin), and/or removal/reduction of underlying causes of gastroparesis (such as opioids).
- Approach to treatment of dysphagia (non-achalasia) is dependent on underlying pathology but may include swallowing rehabilitation (such as by a speech or occupational therapist) and/or diet modification. [3]
- Several small, poor quality trials studied onabotulinumtoxinA in the treatment of gastroparesis. Improvement in gastric emptying time was inconsistent with some trials showing possible benefit [4] and others showing no benefit. [5,6] Despite inconclusive benefit of onabotulinumtoxinA, there is a lack of robust evidence for management of refractory gastroparesis for any one treatment approach. Therefore, botulinum toxin A may be considered medically necessary when standard initial therapies are ineffective. [7]

**Anal Fissures**

- Nitroglycerin ointment, diltiazem cream, and onabotulinumtoxinA have been studied in the treatment of anal fissures.
  * Nitroglycerin ointment and topical calcium channel blocker (e.g. diltiazem or nifedipine) cream are the least invasive.
  * Several small studies suggest healing rates of up to 70% with onabotulinumtoxinA. [8]
* Trials comparing nitroglycerin ointment with onabotulinumtoxinA show inconsistent results.

** A comparative trial demonstrated a healing rate of 52% with nitroglycerin compared to 24% with onabotulinumtoxinA after 2 weeks of treatment. [9]

** A second comparative trial demonstrated a healing rate of 60% with nitroglycerin ointment compared to 96% with onabotulinumtoxinA. [10]

** Another study in 73 subjects with anal fissure found there were no advantages of onabotulinumtoxinA over nitroglycerin ointment in fissure healing and fissure-related pain. [11]

** A Cochrane review concluded topical CCBs, nitroglycerin and botulinum toxin to be overall similarly effective non-surgical treatment options. However, surgical sphincterectomy remains the most efficacious therapy; however, it is limited by significant risks. [8]

* A small randomized, double-blind, controlled trial comparing diltiazem cream to onabotulinumtoxinA showed no difference in fissure healing between groups after three months of treatment. [12]

** *Congenital aganglionic megacolon (Hirschsprung disease)* [13-16]
- Congenital aganglionic megacolon (Hirschsprung disease) is a rare gastrointestinal disorder, due to incomplete neuronal development in the distal colon, resulting in abnormal bowel function due to increased or decreased anal sphincter tone. The condition is generally diagnosed in children and can result in fecal incontinence, constipation, and enterocolitis.

- For constipation symptoms due to increased anal sphincter tone, treatment options include standard bowel regimen, botulinum toxin, and surgery. There is no standard sequencing of therapies; however, the goal of conservative therapies, including botulinum, includes avoidance of surgical procedures.

** *Cervical dystonia (spasmodic torticollis)*
- Cervical dystonia (or spasmodic torticollis) is characterized by involuntary contractions of the neck muscles resulting in twisting and repetitive movements, and/or abnormal postures. [17]

- A Cochrane review concluded a significant decrease in the cervical dystonia severity scale (CDSS) along with an improved physician’s global assessment score and reduction in pain after use of onabotulinumtoxinA injection relative to placebo. The CDSS is an objective measurement used to quantify the severity of abnormal head positioning that results from cervical dystonia. [17]

- OnabotulinumtoxinA has not been shown to be effective in the treatment of in chronic neck pain without torticollis (with or without cervicogenic headache) and mechanical neck disorders and whiplash. [18,19]

** *Migraine Headache*
- This policy recognizes the International Headache Society (IHS) Classification of Chronic Migraine Headache for the definition of chronic migraine, which includes that
headaches are present on 15 days or more per month, and that at least 8 of these episodes meet the criteria for pain and associated symptoms of migraine. (Appendix 1)

- The U.S. Headache Consortium endorses headache calendars as the gold standard to track treatment progress. [20]
- Evidence supporting the efficacy of onabotulinumtoxinA in the treatment of migraines has been inconsistent.
- Collective results of seven randomized, controlled episodic migraine trials (totaling more than 1,000 patients) have failed to demonstrate a significant difference between onabotulinumtoxinA and placebo in migraine prevention. Pre-specified primary endpoints and most secondary endpoints were not met. [21-25]
- Two additional trials studying onabotulinumtoxinA in the treatment of chronic migraine were more recently published. [26,27]

* In the PREEMPT 1 trial, there was no difference between placebo and onabotulinumtoxinA in mean change in headache episodes, the primary endpoint.

* In the PREEMPT 2 trial, the primary endpoint was changed to mean change in headache days after the PREEMPT 1 trial failed to meet its primary endpoint. A statistical difference favoring onabotulinumtoxinA over placebo was demonstrated. The mean number of headaches decreased from approximately 20 to 11 in the onabotulinumtoxinA group and from approximately 20 to 13 in the placebo group at week 24.

* Subjects enrolled in the trials had migraine headaches occurring on 15 or more days per 4 weeks, of which each consisted of four or more hours of continuous headache.

- The American Academy of Neurology (AAN) does not support the use of botulinum toxin type A products in the prevention or treatment of headaches. [28] The AAN Technology Assessment of botulinum toxin concludes that:

* They are likely ineffective in treatment of episodic migraine and chronic tension-type headache.

* There is no consistent or strong evidence that they are effective in the treatment of chronic daily headache.

- Both the AAN and the American Headache Society recommend limiting the use of abortive therapies for headache. These include over-the-counter (OTC) medications such as NSAIDS and acetaminophen, given the risk of developing medication overuse headache (MOH). Use of OTC abortives should be limited to no more than 14 days per month. In addition, use of butalbital-containing medications and opioids can increase sensitivity to pain. Use of these prescription abortives should be limited to no more than nine days per month (or two days per week). [29]

Use of Oral Prophylactic Therapies [30,31]

* Guidelines from the American Academy of Neurology and American Headache Society recommend select antiepileptic medications (divalproex or topiramate) and beta-blockers (propranolol, timolol, or metoprolol) as options that should be
offered to patients requiring migraine prophylaxis, with the highest level of evidence to support their use.

* Other medications that are “probably effective and should be considered” include tricyclic antidepressant (TCA) amitriptyline, selective serotonin-norepinephrine reuptake inhibitor (SNRI) venlafaxine, atenolol and nadolol.

* Use of carbamazepine and a variety of select antihypertensives (candesartan, lisinopril, clonidine, guanfacine, or pindolol) are possibly effective; however, the many other prophylactic alternatives with higher-quality evidence should be used first.

* Many other medications, including but not limited to selective serotonin receptor inhibitors (SSRIs; e.g. fluoxetine, fluvoxamine), other SNRIs (e.g. duloxetine), other AEDs (gabapentin, lamotrigine, and oxcarbazepine), calcium channel blockers (CCBs; e.g. nicardipine, nifedipine, verapamil) and clonazepam, have been studied in migraine prophylaxis, but evidence supporting their efficacy is conflicting, inadequate, or negative (support the therapy is ineffective). [30,31]

* There is no evidence that directly compares onabotulinumtoxinA with other prophylactic therapies such as beta-blockers, antiepileptic medications, or tricyclic antidepressants. [7]

Other Types of Headache:

* Chronic Daily Headache (CDH): onabotulinumtoxinA has not been shown to be effective in treatment or prevention of CDH.[22,32,33]

* Tension Headache: Current evidence is insufficient to permit conclusions regarding botulinum toxin type A products as prophylactic therapy in patients with chronic tension headaches refractory to pharmacologic therapy. [21,34-37]

* The majority of trials using onabotulinumtoxinA do not support its efficacy in the treatment of tension headaches. [34,36-38]

Hyperhidrosis

- Hyperhidrosis can lead to medical complications, including skin maceration with recurrent bacterial or fungal infection requiring treatment or persistent eczematous dermatitis. [39]

- Palmar hyperhidrosis can interfere with ability to function, when grip is impaired due to hyperhidrosis. [39]

- Topical treatments, such as aluminum chloride solution (Drysol) are the primary therapy for axillary and palmar hyperhidrosis, once secondary causes of hyperhidrosis are ruled out. Topical treatments and systemic anticholinergics are primary therapy for persistent eczematous dermatitis. [39]

- There are several double-blind trials that evaluate onabotulinumtoxinA in patients with primary axillary and primary palmar hyperhidrosis. [7,40,41]

* Treated palms with onabotulinumtoxinA were associated with a 26% reduction in sweating (measured by ninhydrin sweat testing) compared to no reduction with placebo. [40]
In two pivotal trials, 81% to 91% of patients treated for primary axillary hyperhidrosis achieved a greater than 50% reduction in axillary sweating at 4 weeks compared with 36% to 41% in the placebo group. [7]

- The median duration of effect in two pivotal trials that evaluated onabotulinumtoxinA in primary axillary hyperhidrosis was 201 days. [7]
- Reduction in sweating is also described in case series reports for both palmar and axillary hyperhidrosis with onabotulinumtoxinA injections lasting up to 5-12 months. [42,43]
- However, despite the reduction in sweating, onabotulinumtoxinA does not affect the unpleasant odor.
- In a small case study, intracutaneous onabotulinumtoxinA was effective in ceasing gustatory sweating up to a mean duration of 17 months. [44]

**Muscle Spasms and Dystonias**

- A spasm is defined as a sudden involuntary contraction of one or more muscles.
- Muscle spasms are a potential symptom of spasticity, a condition in which specific muscles are continuously contracted. The contraction causes muscles to be stiff or tight and may interfere with movement, speech, and walking.
- Botulinum has been studied and shown to be effective in spasticity due to cerebral palsy, spastic hemiplegia or paraplegia, dysphonia, blepharospasm, hemifacial spasm, facial nerve disorders, and demyelinating disease of the CNS, as well as a variety of dystonias: hand dystonia, oromandibular dystonia, spasmodic torticollis, and torsion dystonia.

**Pelvic Floor Dysfunction, including levator (pelvic floor) spasm**

- Pelvic floor dysfunction is global term used to describe a number of conditions, including chronic pelvic pain. For pelvic floor dysfunction due to levator (pelvic floor) muscle spasm, non-pharmacologic therapy includes physical therapy with pelvic floor training can be used, along with other types of physical therapy. Pharmacologic therapies include various chronic pain medications such as antiepileptics, antidepressants (tricyclic, serotonergic), muscle relaxants, NSAIDs, as well as hormone replacement therapies. Opioids may be used for severe pain, along with trigger point injections. Surgery is reserved for refractory pain. [52]
- The evidence for onabotulinumtoxinA for treatment of pelvic floor muscle spasm is limited to one randomized controlled trial (n=60). The trial reported a decrease in pelvic floor muscle pressure but no significant difference reduction in pain scores. However, there is a lack of robust evidence for management of refractory pelvic floor muscle spasm for any one treatment approach. Therefore, botulinum toxin A may be considered medically necessary when standard initial therapies are ineffective. [103]

**Raynaud’s Disease**

- Raynaud’s phenomenon (Raynaud disease) is vasospasm due to cold or stress and can lead to severe constriction of the digits (both fingers and toes). Severe cases may result in digital ischemia, ulcers, and gangrene. [53]
- Non-pharmacologic therapy includes trigger avoidance, including cold, vasoconstricting medications, and smoking. Pharmacologic therapies may be used for refractory RP.

- Dihydropyridine calcium channel blockers (CCBs), such as amlodipine or nifedipine, are the usual first-line pharmacologic treatment options. Other pharmacologic treatment options include various vasodilators: phosphodiesterase (PDE) type 5 inhibitor (e.g. sildenafil, tadalafil), topical nitroglycerin, an angiotensin receptor blocker (e.g. losartan, valsartan), or a serotonin reuptake inhibitor.

- There is limited evidence to guide the management of refractory or progressive ischemia. The goal is prevention of tissue loss, including amputation of digits. Treatment may include aggressive non-pharmacologic, pharmacologic, and surgical therapies. [54]

- The evidence for onabotulinumtoxinA or incobotulinumtoxinA for treatment of Raynaud’s syndrome is limited to one pilot trial and one retrospective case series with onabotulinumtoxinA. [88-90] However, given the lack of non-surgical options for refractory ulcers, botulinum toxin A may be covered when standard vasodilator therapy is ineffective, not tolerated, or all options are documented as medically contraindicated.

**Sialorrhea (drooling)**

- Botulinum toxin A or B can be used for reduction of sialorrhea in patients with a variety of neurological disorders. The goal of therapy is to reduce sialorrhea-associated complications, such as aspiration pneumonia or skin breakdown.

- Anatomically guided injections of rimabotulinumtoxinB into the parotid and submandibular glands appear to effectively improve sialorrhea in patients with a variety of neurologic conditions, including Parkinson’s disease and amyotrophic lateral sclerosis (ALS). [7,55,56]

**Urinary Incontinence - Neurogenic and idiopathic detrusor overactivity/detrusor hyperreflexia**

- Several open-label studies (n=15 to n=200) demonstrated an increase in bladder capacity, a decrease in bladder pressure, and a decrease in incontinence episodes after injection with onabotulinumtoxinA, in both children and adults. [57-59]

- A Cochrane review concluded both botulinum type A and B formulations are effective treatment options for urinary incontinence due to refractory detrusor overactivity due to neurogenic or idiopathic overactive bladder (OAB). [60]

**INVESTIGATIONAL USES**

**Allergic Rhinitis**

- One small (n=34) randomized controlled trial of 8-week duration suggests efficacy of onabotulinumtoxinA in relieving rhinorrhea, nasal obstruction and sneezing due to allergic rhinitis. There was no difference between onabotulinumtoxinA and placebo groups for the symptom of itching. [61]

- Well-designed, large-scale trials with repeated injections and comparison to nasal steroids are necessary to validate positive benefits of using onabotulinumtoxinA in this condition.
**Benign Prostatic Hyperplasia (BPH)**

- A small, poor quality trial comparing the effects of onabotulinumtoxinA with or without an alpha-adrenergic antagonist suggest possible onabotulinumtoxinA efficacy. The absence of a placebo comparator makes it difficult to determine the true efficacy of onabotulinumtoxinA. [62] The evidence for the use of onabotulinumtoxinA in the treatment of BPH is limited to a variety of Phase II and uncontrolled trials. [7,63] Additional higher-quality studies are needed before onabotulinumtoxinA can be considered safe and effective in this condition.

**Congenital talipes equinovarus (clubfoot) [64]**

- A Cochrane review concluded that there is insufficient evidence to conclude that botulinum toxin is effective for treatment of clubfoot. The evidence is limited to one small trial, as adjunctive therapy to casting.
- Usual conservative interventions include stretching, casting, and splinting. Surgery is reserved for resistant deformities.

**Dermatochalasis**

- Dermatochalasis is a condition in which a fold of skin develops in the eyelid, potentially leading to impaired vision, blepharitis, and dermatitis. Surgery is the current standard of care.
- A small, poor quality study (open-label study without a placebo comparator) suggests that onabotulinumtoxinA may be an effective treatment for upper eyelid dermatochalasis. [65] Additional well-controlled studies are needed before onabotulinumtoxinA can be considered safe and effective in this condition.

**Dry Eye Disease**

- The evidence for the use of onabotulinumtoxinA for dry eye disease is limited to one small pilot trial (n=20). [66] Larger, well-controlled trials are needed to establish safety and effectiveness of onabotulinumtoxinA for this indication.

**Interstitial Cystitis**

- Four, poor quality studies (case series) have assessed onabotulinumtoxinA treatment for pain and improvement of bladder capacity in patients with interstitial cystitis. All reports suggest efficacy, though results have not been confirmed in larger controlled trials. [7,67]

**Low Back Pain**

- The evidence for the use of botulinum toxin A in the treatment of lower back pain is limited to several small, poor quality trials. [68] The studies did not address functional improvement or long-term effects of onabotulinumtoxinA. Large, well-controlled studies are needed before onabotulinumtoxinA can be considered safe and effective in this condition. [7]

**Motor Tics**

- In one small, poor quality trial, onabotulinumtoxinA reduced tic frequency and urge in patients with Tourette Syndrome or Chronic Tic Disorder. [69] These reductions were not...
associated with an overall clinical benefit (measured by the patient’s global impression of change).

**Myofascial Pain**
- OnabotulinumtoxinA has not been shown to provide a consistent benefit over placebo in the treatment of myofascial pain. [7,70]
- One small trial found botulinum toxin A improved pain and quality of life. However, small trial size and use of an enriched protocol design limit generalizability of findings to clinical practice. Only half of patients responded to the initial dose of botulinum toxin A and were enrolled in the randomized phase of the trial. [71]

**Obesity**
- There is no reliable evidence that onabotulinumtoxinA is useful in reducing body weight in obese patients.
  * Two small, poor quality trials failed to show a reduction in body weight after administration of onabotulinumtoxinA. [72,73]
  * A small randomized, double-blind study in 24 morbidly obese patients demonstrated significant difference between onabotulinumtoxinA and saline. However, patients were also maintained on a liquid diet for eight weeks. [74]

**Orthopedic Pain – Plantar Fasciitis, Lateral epicondylitis (tennis elbow), Osteoarthritis (OA) of the knee**
- Four small, exploratory randomized controlled trials reported an improvement in pain scores with onabotulinumtoxinA in patients with plantar fasciitis refractory to other therapies. [75-78]
- Several small, poor quality trials evaluated onabotulinumtoxinA in patients with lateral epicondylitis (tennis elbow). [79-81] Consistent benefit has not been demonstrated across trials.
- One trial evaluated intra-articular onabotulinumtoxinA for treatment of OA-related knee pain. [82] Despite a reduction in pain with onabotulinumtoxinA versus placebo, additional evidence is needed to establish the clinical benefit versus established standard of care treatments for OA, such as NSAIDs.
- Larger, well-controlled trials are needed to establish safety and effectiveness in these conditions and to establish efficacy relative to conventional therapies. [7]

**Nerve Entrapment and Compression Syndromes (such as Brachial Plexus Injury, Carpal Tunnel Syndrome, Piriformis Syndrome, Thoracic outlet syndrome)**
- Piriformis syndrome is a form of myofascial pain characterized by sciatica and buttock tenderness.
  * Few case reports describe the management of piriformis syndrome. [83] Physical therapy, steroid injections, surgical dissection or resection of the muscle have been reported to relieve symptoms.
  * Well-designed studies using onabotulinumtoxinA for this condition have not been conducted. Available evidence consists of small (fewer than 30 patients) open-label, uncontrolled studies. [7,84]
- There is insufficient evidence to establish efficacy of botulinum toxin for treatment of carpal tunnel syndrome. The evidence is limited to one pilot trial. [83]

- Thoracic outlet syndrome (TOS) is a form of myofascial pain and may include brachial plexus injury.
  * A Cochrane review concluded that there is insufficient evidence to conclude that botulinum toxin is effective for treatment of TOS. [86] In one small trial, botulinum toxin did not significantly reduce pain or disability scores versus placebo in patients with TOS (of any type). The evidence is complicated by a lack of consensus in the diagnosis of TOS. Additional research is needed to clarify the benefit of TOS treatments.[87]

* Strengthening exercises, physical therapy and surgery are the standard of care.

**Temporomandibular dysfunction (TMJ), Bruxism, and/or Masseter Muscle Spasm and Hypertrophy**

- Several small, uncontrolled (case series) studies have studied onabotulinumtoxinA in the treatment of symptoms (headache, jaw dislocation, etc.) arising from TMJ dysfunction. Larger, well-controlled studies are needed to establish benefit in the treatment of this condition. [88-91]

- Several small, poor quality trials evaluated onabotulinumtoxinA in patients with bruxism, masseter muscle spasm, and/or masseter hypertrophy and one small trial with incobotulinumtoxinA. Consistent benefit has not been demonstrated across trials. Additional larger trials are needed to establish the safety and efficacy of botulinum toxin type A. [92-96]

**Tremor**

- There is insufficient evidence to support the use of onabotulinumtoxinA in essential hand tremor or MS-related tremor and no evidence in Parkinson’s disease-related tremor. [7,97]

- OnabotulinumtoxinA resulted in significant improvement of postural, but not kinetic essential hand tremors. [97] Likewise, one small crossover trial of incobotulinumtoxinA (n=30) improved rest tremor, tremor severity, and postural tremor. [98] However, there is not compelling evidence that either botulinum toxin formulation leads to better functional efficacy for patients.

**SAFETY**

- The severity and type of adverse effects depends on the location where the botulinum toxin A is injected, the dose used, and the injection technique.

- Commonly reported adverse events observed in clinical trials of onabotulinumtoxinA include dry mouth, dysphagia, asthenia, diplopia, and injection site pain. The prevalence and severity of adverse effects may vary depending on the dose and the site of injection. [51]

- All botulinum toxin products carry a box warning in their labeling describing the potential for toxin to spread from the site of injection and produce symptoms consistent with botulinum toxin effects. Symptoms may include asthenia, generalized muscle...
weakness, diplopia, blurred vision, ptosis, dysphagia, dysphonia, dysarthria, urinary incontinence and breathing difficulties and may occur hours to weeks after injection. Swallowing and breathing difficulties can be life threatening. Deaths have been reported.

- The safety, efficacy and dosing of botulinum toxins has not been established for any condition in children less than 12 years of age.

**DOSING CONSIDERATIONS**

- Botulinum toxin type A products are all produced using different methods, so their dosing and potencies are not the same (the number of units of one botulinum toxin type A product cannot be converted to units of another product).

- Starting doses for botulinum toxin type A products are available in the prescribing information for the specific products. Follow-up doses may be adjusted based on the effectiveness of the initial injections and adverse effects.

**Appendix 1: International Headache Society Classification of Chronic Migraine Headache [99]**

| A. | Headache (tension-type and/or migraine) on 15 or more days per month for at least 3 months.* |
| B. | Occurring in a patient who has had at least 5 attacks fulfilling criteria for a migraine without an aura. |
| C. | On 8 or more days per month for at least 3 months headache has fulfilled criteria for pain and associated symptoms of migraine without aura in either or both of criteria 1 or 2 below: |
| 1. | At least two of the following criteria a), b), c), and d) below are met: |
| 1a. | Unilateral location |
| 1b. | Pulsating quality |
| 1c. | Moderate or severe pain intensity |
| 1d. | Aggravation by or causing avoidance of routine physical activity (e.g. walking or climbing stairs) |
| 1e. | AND at least one of the following criteria e) or f) below are met: |
| 1e. | Nausea and/or vomiting |
| 1f. | Photophobia and phonophobia |
| 2. | Treated and relieved by triptan(s) or ergot before the expected development of the above symptoms. |
| D. | No medication overuse and not attributed to another causative disorder. |

* Characterization of frequently recurring headache generally requires a headache diary to record information on pain and associated symptoms day-by-day for at least one month. Sample diaries are available at [http://www.i-h-s.org](http://www.i-h-s.org).
Cross References

<table>
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<tr>
<td>Surgical Treatments for Hyperhidrosis, Medical Policy Manual; Med 165.</td>
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<tr>
<td>Myobloc, rimabotulinumtoxinB, Medication Policy Manual, Policy No. dru048</td>
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<tr>
<td>CGRP Monoclonal Antibodies, galcanezumab (Emgality), fremanezumab (Ajovy), erenumab (Aimovig), Medication Policy Manual, Policy No. dru540</td>
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Codes

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<td>J0586</td>
<td>Injection, abobotulinumtoxinA, 5 units</td>
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<td>HCPCS</td>
<td>J0588</td>
<td>Injection, incobotulinumtoxinA, 1 unit</td>
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References

7. "Botulinum Toxin." BlueCross BlueShield Association (BCBSA) Medical Policy Reference Manual, Policy No. 5.01.05, Last review date: September 2013


These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.


99. International Headache Society (IHS) [page on the internet]. IHS Classification ICHD-II (revised criteria). [cited 1/12/2017]; Available from: http://ihs-classification.org/en/02_klassifikation/05_anhang/01.05.01_anhang.html
**Revision History**

<table>
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<th>Revision Date</th>
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| 4/22/2020     | - Clarified CGRP monoclonal antibody step therapy for migraines (when used for prophylaxis). CGRPs used as abortive therapy do not meet this criterion.  
- Added coverage criteria for refractory Raynaud’s and pelvic floor dysfunction.  
- Policy criteria updated for achalasia: simplified coverage to use as part of an endoscopic procedure for upper GI diagnoses. |
| 1/22/2020     | - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
- Clarified reauthorization (simplified; no change to intent)  
- Policy criteria updated for migraine indication to include CGRP monoclonal antibody as step therapy option |
| 1/31/2019     | - Simplified Section I criteria.  
- Updated investigational uses:  
  - Removed Migraine headache (chronic) in combination with CGRP inhibitors from investigational uses  
  - Clarified pelvic floor spasm (including pelvic pain, vulvodynia, and vaginismus)  
- Clarified reauthorization criteria for Section II |
| 8/17/2018     | - Added as Investigational uses: Migraine headache (chronic) in combination with CGRP inhibitors |
| 01/19/2018    | - Update migraine severity criteria to International Headache Society (HIS) standard  
- Update list of Investigational uses (add Dry Eye Disease and OA-related knee pain). |
| 02/17/2017    | - The policy criteria were simplified for hyperhidrosis.  
- Add coverage criteria for congenital aganglionic megacolon (Hirschsprung disease).  
- Clarify quantity limits to 2 doses per 24-weeks and 4 doses per 48-weeks (versus use of 6 and 12 months, respectively). |
| 2/12/2016     | - The policy criteria were updated for hyperhidrosis to clarify the wording regarding medical complications for the definition of medical necessity.  
- Add coverage criteria for lower limb dystonia, a new FDA-indication.  
- Added as Investigational uses: dysphagia (non-achalasia), Raynaud’s disease, and bruxism/masseter muscle hypertrophy. |
| 01/01/1996    | - New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru020  
**Date of Origin:** January 1996

**Topic:** Immune Globulin Replacement Therapy, (IVIG, SCIG):

- Asceniv
- Bivigam
- Carimune NF
- Cutaquig
- Cuvitru
- Flebogamma DIF
- Gammagard
- Gammagard S/D
- Gammaked
- Gammaplex
- Gamunex-C
- Hizentra
- Hyqvia
- Octagam
- Panzyga
- Privigen
- Xembify

**Committee Approval Date:** June 17, 2022  
**Next Review Date:** March 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Intravenous immune globulin (IVIG) and subcutaneous immune globulin (SCIG) are preparations containing antibodies purified from human blood. They are used in the treatment of many different conditions resulting from immune deficiencies or other immunologic conditions.
Policy/Criteria

Most contracts require pre-authorization approval of immune globulins prior to coverage.

I. Continuation of therapy (COT) and New starts (treatment-naïve patients):

II. Continuation of therapy (COT): All other immune globulins (as listed in Table 1) may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

III. New starts (treatment-naïve patients): All other immune globulins (as listed in Table 1) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

A. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND
B. At least one of the following diagnostic criteria 1 through 5 below is met:

1. Immunodeficiency (primary or acquired), as defined in criterion a or b:
   a. A diagnosis of one of the following and documented hypogammaglobulinemia (a low baseline serum IgG level):
      i. Primary humoral immunodeficiency diseases (PID) (as defined in Appendix I).
      ii. HIV infected children (< 13 years of age) with hypogammaglobulinemia.
      iii. Hematologic malignancy-related hypogammaglobulinemia.
      iv. Post-allogeneic bone marrow transplant (BMT).
      v. B-cell medicated cancer [e.g., chronic lymphocytic leukemia (CLL), B-cell lymphoma].
      vi. Hypogammaglobulinemic neonates, with a low birth weight (less than 1500g) or in a setting with high baseline infection rate or morbidity.

      OR

   b. A diagnosis of dysgammaglobulinemia, primary or due to multiple myeloma in patients with stable disease, and at least one of the following:
      i. high risk of recurrent infections despite prophylactic antibiotic therapy.
      ii. poor IgG response to the pneumococcal vaccine.
      iii. low normal IgG levels during acute sepsis episodes.

      OR

2. Hematologic disorders (immune-mediated), not responding to alternative therapies, or at high risk of bleeding:
   a. Acquired Factor VIII inhibitor when conventional therapy is ineffective or not tolerated. (e.g., immunosuppressive therapy with cyclophosphamide, steroids, or azathioprine).

   OR

   b. Autoimmune hemolytic anemia (AIHA) not responding to alternative therapies (e.g., steroids, immunosuppressive agents, plasmapheresis, rituximab and/or splenectomy).

   OR

   c. Fetal (neonatal) alloimmune thrombocytopenia (FAIT) with documented diagnosis.

   OR

   d. Idiopathic thrombocytopenia purpura, also known as “immune thrombocytopenia,” (acute; ITP), when a rapid increase in platelet count is necessary, such as in an acute bleeding episode or prior an invasive procedure (including surgery, epidural anesthesia, or Cesarean section).

      OR
e. **ITP (chronic)**, when the platelet count is dangerously low, defined as a platelet count less than 30,000 cells/mm³ in children, less than 20,000 cells/mm³ in adults, or less than 30,000 cells/mm³ along with signs/symptoms of bleeding in adults, as a bridge to an alternative chronic therapy (including but not limited to rituximab, a TPO mimetic, or splenectomy) OR when at least one other chronic therapy has been ineffective or all are contraindicated.

OR

f. **ITP in pregnancy**, when at least one of the following criteria are met:

i. Platelet counts less than 20,000/mm³ in the third trimester, despite an adequate course of corticosteroids, unless use of steroids are contraindicated, or not tolerated.

OR

ii. Platelet counts less than 30,000/mm³ associated with bleeding or before vaginal delivery or C-section.

*For IVIG use in preparation for C-section or epidural anesthesia, see criteria 2.d. above*

OR

g. **Post-transfusion purpura** (hemolytic transfusion reaction) in severely affected patients.

OR

h. **Pure red cell aplasia** (PRCA, viral) with documented parvovirus B19 infection and severe anemia.

OR

3. **Neuromuscular disorders** when significant functional impairment is present:

a. **Acute inflammatory demyelinating polyneuropathy**, including **Guillain-Barré syndrome** (GBS), when one of criteria i through iv below are met:

i. Deteriorating pulmonary function tests.

OR

ii. Rapid deterioration with symptoms for less than 2 weeks.

OR

iii. Rapidly deteriorating ability to ambulate.

OR

iv. Inability to walk independently for 10 meters.

OR

b. **Chronic inflammatory demyelinating polyneuropathy** (CIDP) when both criteria i and ii below are met:

i. Significant functional disability.

AND
ii. Documentation of slowing of nerve conduction velocity on electromyogram (EMG)/nerve conduction study (NCS).

OR

c. Acute demyelinating encephalomyelitis (ADEM) or anti-NMDA receptor encephalitis when prior therapy with corticosteroids has been ineffective or not tolerated.

OR

d. Lambert-Eaton myasthenic syndrome (LEMS).

OR

e. Multifocal motor neuropathy (MMN) in patients with conduction block.

OR

f. Myasthenia gravis for the treatment of acute crisis (e.g., respiratory failure, swallowing difficulties) OR chronic decompensation, when other treatments are ineffective or not tolerated (e.g., plasmapheresis, pyridostigmine, azathioprine, cyclosporine, and cyclophosphamide).

OR

g. Paraneoplastic opsoclonus ataxia syndrome (Opsoclonus-myoclonus ataxia syndrome, OMS) in pediatric neuroblastoma patients with significant functional impairment and not responding to an adequate course of steroids (at least 3 to 7 days).

OR

h. Pemphigoid, refractory immunobullous disease (e.g., bullous pemphigoid, pemphigus foliaceus, pemphigus vulgaris) until conventional treatment takes effect (e.g., immunosuppressive agents and plasmapheresis).

OR

i. Refractory myositis, including but not limited to autoimmune myositis, dermatomyositis (adult), or polymyositis, in patients with severe active illness including muscle weakness and associated severe disability when corticosteroids or other immunosuppressants (e.g., azathioprine, methotrexate, or cyclophosphamide have been ineffective, are contraindicated or not tolerated.

OR

j. Juvenile Dermatomyositis (JDM), with muscle weakness and associated severe disability, with at least ONE of the following documented diagnostic criteria below:

i. Evidence of myositis, demonstrated by abnormality of muscle biopsy, MRI, OR EMG.

OR
ii. Increased muscle enzymes levels (such as CPK, AST, LDH, and/or aldolase)

OR

iii. Cutaneous changes, including heliotrope dermatitis (rash on the upper eyelids) and Gottron's papules (papules over the knuckles), not responding to oral corticosteroids, methotrexate, and/or another oral immunosuppressant.

OR

k. **Stiff-Person Syndrome** when treatment with other agents is ineffective or not tolerated. (e.g., diazepam, baclofen, clonazepam, valproic acid, and clonidine).

OR

l. **Systemic lupus erythematosus**, for severe active disease when other interventions are ineffective or not tolerated (e.g., corticosteroids and immunosuppressive agents, such as cyclophosphamide or azathioprine).

OR

4. **Transplant (solid organ), antibody-mediated rejection:**
   a. **Prevention of antibody (Ab)-mediated rejection:** Prior to solid organ transplant and in the peri-operative period, for patients at high risk for Ab-mediated rejection, including highly sensitized patients, and those receiving an ABO-incompatible organ.

OR

b. Treatment of antibody-mediated rejection (a.k.a. vascular rejection, humoral rejection): Following solid organ transplant and confirmed by either biopsy or presence of panel reactive antibodies (PRAs).

OR

5. **Other Miscellaneous conditions** when criteria are met:
   a. **Kawasaki syndrome**, during the first ten days of diagnosis.

OR

b. **Pediatric intractable epilepsy** in candidates for surgical resection or when other interventions are ineffective or not tolerated. Examples of other interventions include, but are not limited to, anticonvulsant medications, ketogenic diets, and steroids. [85]

OR

c. **Post-Exposure prophylaxis against varicella-zoster** (VZV) in high-risk populations (immunocompromised individuals who lack evidence of immunity to VZV, pregnant women who lack evidence of VZV immunity, newborns of mothers who develop peri-partum varicella, or infants in the first two weeks of life).
d. **BK Viremia** (BK polyomavirus in solid organ transplantation) in patients with persistent viremia despite a sufficient reduction of immunosuppressive therapy for at least 4 weeks. ['Sufficient reduction' is defined as discontinuation of an antimetabolite (such as mycophenolate mofetil or azathioprine) OR a 50% dose reduction of a calcineurin inhibitor (such as tacrolimus or cyclosporine)].

**IV. Administration, Quantity Limitations, and Authorization Period**

A. Regence Pharmacy Services considers immune globulins coverable only under the medical benefit (regardless of self- or provider-administration).

B. When pre-authorization is approved, immune globulins will be covered in the quantities and for the authorization periods outlined in Table 2.

C. Subcutaneous administration of immune globulin (SCIG) is considered an alternative to intravenous administration of immune globulin (IVIG) and may be considered medically necessary when one of the coverage criteria above is met.

D. For dose requests above the policy limits (as listed in Tables 1 and 2):

1. **IVIG:** Higher doses may be coverable for patients who have clear clinical documentation, including but not limited to chart notes, supporting an objective improvement in symptoms or function while treated with IVIG 2 g/kg per four weeks (or equivalent), and who have maximized adjunctive therapy, but continue to have functional impairment or incomplete disease control.

2. **SCIG:** Doses of SCIG in excess of those listed in Table 1 are considered ‘not medically necessary.’

E. The concomitant use of maintenance SCIG and IVIG is considered not medically necessary.

### Table 1. Immune Globulin Replacement Products

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Route of Administration</th>
<th>Coverable Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gammaplex</td>
<td>Flebogamma DIF</td>
<td>IVIG 2 grams/kg/month (or equivalent)</td>
</tr>
<tr>
<td>Bivigam</td>
<td>Panzyga</td>
<td></td>
</tr>
<tr>
<td>Carimune NF</td>
<td>Privigen</td>
<td></td>
</tr>
<tr>
<td>Octagam</td>
<td>Gammagard S/D</td>
<td></td>
</tr>
<tr>
<td>Gammagard</td>
<td></td>
<td>IVIG or SCIG 2 grams/kg/month (or equivalent)</td>
</tr>
<tr>
<td>Gammaked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gamunex C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutaquig</td>
<td>Hyqvia</td>
<td>SCIG 0.4 gm/kg/week (or equivalent)</td>
</tr>
<tr>
<td>Cuvitru</td>
<td>Xembify</td>
<td></td>
</tr>
<tr>
<td>Hizentra</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asceniv</td>
<td>IVIG</td>
<td>800mg/kg every 3-4 weeks</td>
</tr>
</tbody>
</table>
### Table 2. Quantity Limits and Authorization Period

<table>
<thead>
<tr>
<th>Indication</th>
<th>Dosing Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Replacement Therapy - Immunodeficiency</strong></td>
<td><strong>Initial Authorization and Continued Authorization</strong>: IVIG: Up to 2 g/kg per four weeks; SCIG: 0.4 gm/kg/week (or per Table 1).</td>
</tr>
<tr>
<td>Primary humoral immunodeficiency disease (PID)</td>
<td>- Authorization may be reviewed at least every 12 months.</td>
</tr>
<tr>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, defined as decreased occurrence of infections or normalization of IgG levels.</td>
<td></td>
</tr>
<tr>
<td>Hematologic malignancy-related hypogammaglobulinemia (e.g., CLL, post-BMT)</td>
<td>- IVIG doses higher than 2 g/kg per four weeks may be considered when there is documentation of continued severe infections despite IVIG doses of 2 g/kg per 4 weeks. Higher doses of SCIG are not coverable.</td>
</tr>
<tr>
<td>HIV+ children with hypogammaglobulinemia</td>
<td></td>
</tr>
<tr>
<td>Hypogammaglobulinemic neonates</td>
<td></td>
</tr>
<tr>
<td><strong>Hematologic disorders (immune-mediated)</strong></td>
<td></td>
</tr>
<tr>
<td>Acquired Factor VIII Inhibitor</td>
<td>- <strong>Initial Authorization and Continued Authorization</strong>: Up to 2 g/kg per four weeks.</td>
</tr>
<tr>
<td>- Authorization shall be reviewed at least every 52 weeks.</td>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, defined as initial response, and continued presence of Factor VIII inhibitor.</td>
</tr>
<tr>
<td>Autoimmune hemolytic anemia, (AIHA)</td>
<td>- <strong>Initial Authorization and Continued Authorization</strong>: Up to 2 g/kg per four weeks.</td>
</tr>
<tr>
<td>- Authorization shall be reviewed at least every 52 weeks.</td>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, defined as initial response, and recurrence of clinically significant, symptomatic anemia.</td>
</tr>
<tr>
<td>Fetal (neonatal) alloimmune thrombocytopenia (FAIT)</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per week until delivery.</td>
</tr>
<tr>
<td>- <strong>Continued Authorization</strong>: No reauthorization.</td>
<td></td>
</tr>
<tr>
<td>ITP (acute)</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg total (authorization is for up to 28 weeks).</td>
</tr>
<tr>
<td>- <strong>Continued Authorization</strong>: No reauthorization (please see ITP [chronic] below for ongoing therapy requests).</td>
<td></td>
</tr>
<tr>
<td>Indication</td>
<td>Dosing Schedule</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ITP (chronic)</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks, up to 28 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: Up to 2 g/kg per four weeks</td>
</tr>
<tr>
<td></td>
<td>- Authorization <strong>shall</strong> be reviewed at least every 52 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, with a documented initial response to IVIG and:</td>
</tr>
<tr>
<td></td>
<td>o Continued thrombocytopenia, defined as a platelet count of &lt; 20,000 OR less than 30,000 cells/m(^3) and clinically significant bleeding despite therapy with an alternative chronic therapy.</td>
</tr>
<tr>
<td></td>
<td>OR Documentation that an alternative chronic therapy has been ineffective, or not tolerated.</td>
</tr>
<tr>
<td>ITP in pregnancy</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks, up to delivery.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: No reauthorization (please see criteria for ITP [chronic] for ongoing therapy requests).</td>
</tr>
<tr>
<td>Post-transfusion purpura (hemolytic transfusion reaction)</td>
<td>- <strong>Initial Authorization</strong>: Up to 4 g/kg total over up to 4 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: No reauthorization.</td>
</tr>
<tr>
<td>Pure red cell aplasia (PRCA), viral</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks, up to 28 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: Up to 2 g/kg per four weeks</td>
</tr>
<tr>
<td></td>
<td>- Authorization <strong>shall</strong> be reviewed at least every 52 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, with documentation of initial response, parvovirus, and recurrence of significant anemia.</td>
</tr>
<tr>
<td>Neuroimmunologic disorders</td>
<td></td>
</tr>
<tr>
<td>Acute inflammatory demyelinating polyneuropathy (including GBS)</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks, up to 12 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: No reauthorization; please see criteria for Chronic inflammatory demyelinating polyneuropathy (CIDP) for ongoing therapy requests.</td>
</tr>
<tr>
<td>Pemphigoid, refractory</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks, up to 26 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: No reauthorization.</td>
</tr>
<tr>
<td>Paraneoplastic opsoclonus ataxia syndrome</td>
<td>- <strong>Initial Authorization</strong>: Up to 2 g/kg per four weeks</td>
</tr>
<tr>
<td></td>
<td>- Authorization <strong>shall</strong> be reviewed at least every 28 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization</strong>: Up to 2 g/kg per 4 weeks.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Reauthorization</strong>: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, with documented functional improvement.</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
<table>
<thead>
<tr>
<th>Indication</th>
<th>Dosing Schedule</th>
</tr>
</thead>
</table>
| Acute demyelinating encephalomyelitis (ADEM) or anti-NMDA receptor encephalitis | - **Initial Authorization:** IVIG: up to 2 g/kg per four weeks; SCIG: 0.4 gm/kg/week (or per Table 1); up to 28 weeks.  
- **Continued Authorization:** IVIG: up to 2 g/kg per four weeks; SCIG: 0.4 gm/kg/week (or per Table 1)  
  - Authorization **shall** be reviewed at least every 52 weeks.  
  - **Reauthorization:** Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, with documented functional improvement. |
| Chronic inflammatory demyelinating polyneuropathy (CIDP) |                                                                                |
| Lambert-Eaton myasthenic syndrome (LEMS)                  |                                                                                |
| Multifocal motor neuropathy (MMN)                        |                                                                                |
| Myasthenia gravis (MG. acute and chronic)                |                                                                                |
| Stiff-Person syndrome                                    |                                                                                |
| Dermatomyositis                                           | - **Initial Authorization:** Up to 2 g/kg per four weeks, up to 28 weeks.  
  - **Continued Authorization:** Up to 2 g/kg per four weeks  
  - Authorization **shall** be reviewed at least every 52 weeks.  
  - **Reauthorization:** Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is effective, with documented improvement in muscle strength and/or decreased CPK levels. |
| Myositis, including polymyositis and autoimmune myositis  |                                                                                |
| Systematic lupus erythematosus (SLE)                     |                                                                                |
| Transplant (solid organ)                                 |                                                                                |
| Prevention of acute rejection (pre- and peri-operative)   | - **Initial Authorization:** Up to 2 g/kg per four weeks, up to 12 weeks total.  
  - **Continued Authorization:** No reauthorization. Please see Treatment of antibody (Ab)-mediated (humoral) rejection. |
| Treatment of antibody (Ab)-mediated (humoral) rejection   | - **Initial Authorization:** Up to 2 g/kg per four weeks, up to 12 weeks total.  
  - **Continued Authorization:** Up to 2 g/kg per four weeks  
  - Authorization **shall** be reviewed after each course (see Reauthorization).  
  - **Reauthorization:** Clinical documentation (including, but not limited to chart notes) must be provided to confirm that one of the following is met:  
    - **Persistent rejection:** Up to 28 weeks total may be authorized if rejection is persistent, and documentation of a treatment plan has been provided that must include a plan for re-transplantation.  
    - **New episode of rejection:** Up to 12 weeks total when there is documented improvement from a previous course and confirmation of another episode of rejection. |
| Other Miscellaneous disorders                             |                                                                                |
| Kawasaki syndrome                                         | - **Initial Authorization:** Up to 4 g/kg total, authorized over an eight-week period.  
  - **Continued Authorization:** No reauthorization |
| Pediatric intractable epilepsy                            | - **Initial Authorization:** Up to 2 g/kg per four weeks, up to 28 weeks.  
  - **Continued Authorization:** Up to 2 g/kg per four weeks |
### Indication

<table>
<thead>
<tr>
<th>Indication</th>
<th>Dosing Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Exposure prophylaxis against varicella-zoster (VZV)</td>
<td>- <strong>Initial Authorization:</strong> 400 mg/kg as a single dose.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization:</strong> No reauthorization.</td>
</tr>
<tr>
<td>BK Viremia (BK polyomavirus in solid organ transplantation)</td>
<td>- <strong>Initial Authorization:</strong> Up to 2 g/kg total, authorized over a twelve-week period.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Continued Authorization:</strong> No reauthorization.</td>
</tr>
</tbody>
</table>

### VI. Immune globulin (IVIG/SCIG) is considered investigational when used for all other conditions, including, but not limited to:

1. Acute lymphocytic leukemia
2. Acute renal failure
3. Adrenoleukodystrophy
4. Adult HIV infection
5. Alzheimer's disease
6. Aplastic anemia
7. Asthma
8. Atopic dermatitis
9. Autism
10. Cardiomyopathy, recent-onset dilated
11. Chronic fatigue syndrome
12. Clostridium difficile, recurrent
13. Complex Regional Pain Syndrome (CRPS)
14. Cystic fibrosis
15. Diabetes
16. Diamond-Blackfan anemia
17. Encephalitis, not otherwise specified (in the coverage criteria above)
18. Endotoxemia
19. Heart block, congenital
20. Hemolytic anemia (other than autoimmune)
21. Hemophagocytic syndrome
22. Human T-lymphocyte virus-1 myelopathy
23. Hyper IgE syndrome
24. Immune mediated neutropenia
25. Inclusion body myositis
26. Infectious disease in high risk neonates and adults following surgery or trauma
27. Lumbosacral plexopathy
28. Narcolepsy/cataplexy
29. Neonatal hemochromatosis
30. Nephropathy, membranous
31. Nephrotic syndrome
32. Neuropathy, not otherwise specified (in the coverage criteria above)
33. Ophthalmopathy, euthyroid
34. PANDAS (Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections) / PANS (Pediatric Acute-onset Neuropsychiatric Syndrome)
35. Paraproteinemic neuropathy
36. Post-polio syndrome
37. Recurrent spontaneous abortion
38. Rheumatoid arthritis
39. Systemic Sclerosis, diffuse cutaneous (dcSS)
40. Stevens-Johnson Syndrome
41. Still's Disease (Systemic Juvenile Immune Arthritis, SJIA)
42. Surgery or trauma
43. Thrombocytopenia, nonimmune
44. Thrombotic Thrombocytopenic Purpura, including Hemolytic Uremic Syndrome (TTP/HUS), neonatal autoimmune and transfusion refractory.
45. Tic disorder (Based on DSM Criteria)
46. Toxic epidermal necrolysis (TEN)
47. Urticaria, delayed pressure
48. Vasculitic syndromes, other systemic (not specified above), such as antineutrophil cytoplasmic antibody- (ANCA) associated vasculitis [microscopic polyangiitis (MPA)], and eosinophilic granulomatosis with polyangiitis (EGPA) [Churg-Strauss Syndrome (CSS)]
49. Von Willebrand’s syndrome

Position Statement

Summary

Intravenous immune globulin (IVIG)

- All IVIG preparations are generally considered therapeutically interchangeable. [32-34]
- Minor immunoglobulin A (IgA) and immunoglobulin G (IgG) subclass differences exist. [32-34]
- IVIG preparations with low IgA content are used to minimize reactions in patients with hypogammaglobulinemia and concurrent IgA deficiency or when anti-IgA antibodies are present in a recipient. [32-34]
- Differences in formulation may guide product selection (e.g., pre-mixed liquid vs. lyophilized powder, 5% vs. 10%, low sucrose, low osmolarity).
Subcutaneous immune globulin (SCIG)

- All immune globulin products for subcutaneous use are approved for patients with primary immune deficiency (PID). They are available as 16.5% or 20% solutions for weekly subcutaneous infusion or as a 10% solution (Hyqvia) for monthly subcutaneous infusion.
- Some immune globulin products for intravenous use may also be for subcutaneous administration (see Table 1 above).
- Multiple injection sites (three to eight) are necessary for weekly infusion (all SCIG in Table 1, excepting Hyqvia) for an average patient because of the volume that must be infused. Hyqvia 10% is formulated with hyaluronidase, to allow for larger volume infusion at a single injection site, dosed monthly.
- SCIG has a lower bioavailability than IVIG, so must be given in higher doses to achieve the same serum IgG concentrations. With exception of Hyqvia, all SCIG formulations require a dose increase versus IVIG.
- However, subcutaneous delivery may result in higher steady-state IgG levels due to less variation in IgG levels.
- Most of these products have not been approved for SC administration for any indication, other than PID. Because other diagnoses usually require larger doses (based on grams per kilogram) with a high volume per dose, subcutaneous administration is generally not feasible. Therefore, use of SCIG in excess of the doses listed in the Quantity Limits (Table 1) is considered “not medically necessary.” Higher doses of immune globulin replacement therapy may be given with intravenous (IVIG) products.
- Injection site swelling, redness, and itching were reported in the majority of patients.

Dosing Considerations and Therapeutic Levels for Replacement Therapy for Treatment of Immunodeficiency with Hypogammaglobulinemia

- A plasma IgG level of 200 mg/dL is often a common minimum target for patients being considered for immune globulin replacement therapy. [4]
- In patients with mild to moderate IgG deficiency with levels of 300 mg/dL-400mg/dL, the decisions to treat are based on clinical symptoms and antigenic challenge. [31]
- Dosing adjustment in replacement therapy is based on clinical response and IgG levels. [4]
  * The trough or steady state IgG level is obtained before scheduled infusions and frequently guides immune globulin replacement therapy (IVIG/SCIG) dose selection.
  * The minimum serum concentration of IgG necessary for protection has not been firmly established. However, maintenance of serum trough IgG levels above 500 mg/dL has been considered a sufficient target to prevent most systemic infections. [4, 31] Some patients may require an IgG level of 400-500 mg/dL above their baseline value for protection.
  * In patients with severe hypogammaglobulinemia, IgG levels (trough) should be checked every three to six months in growing children and every six to twelve months in adults. [56]
Dosing of immune globulin replacement therapy for conditions other than hypogammaglobulinemia do NOT require monitoring of IgG levels. Efficacy in conditions other than hypogammaglobulinemia is based on clinical response, including improvement or resolution of disease symptoms, up to the maximum covered dose (per the Quantity Limits above).

Clinical Efficacy

IMMUNODEFICIENCY (Primary or Secondary) - Replacement Therapy for Hypogammaglobulinemia [1, 4-5, 27, 34, 43]

Primary humoral immunodeficiency diseases

- All available immune globulin replacement products are FDA-approved for use in primary immunodeficiency (PID). [94]

- X-linked agammaglobulinemia (congenital agammaglobulinemia) occurs in male infants, usually presenting in the first 3 years of life.

- Common variable immunodeficiency (CVID; acquired hypogammaglobulinemia; adult onset hypogammaglobulinemia; dysgammaglobulinemia) is characterized by low to normal IgG levels and inability to produce an antibody response to protein (e.g., tetanus) or carbohydrate antigens (e.g., Pneumovax). Most patients experience severe recurrent and/or chronic infections.

- Combined immunodeficiency syndromes, including Wiskott-Aldrich syndrome, are rare, inherited syndromes.

- Immunoglobulin reference ranges vary depending on the age of the patient and the particular assay method used. The usual immune globulin maintenance dose is 100-800mg/kg/month and therapy is usually life-long.

- Serum trough levels should be maintained at 400 – 600 mg/dl. Documentation of the rationale should be provided in the event that a trough level greater than 600 mg/dl is required. [72]

- Hypogammaglobulinemic neonates
  
  * Treatment with IVIG is usually reserved for patients with recurrent severe infections, not responding to antibiotic prophylaxis.

  * The usual IVIG dose is 400 – 600 mg/kg/month, administered as a single dose, or up to several months in duration. [67]

Acquired Deficiencies:

- Hematologic malignancy-related hypogammaglobulinemia (including B-cell cancers, multiple myeloma, and post-bone marrow transplant (BMT)

  * Use of immune globulin replacement in hypogammaglobulinemic patients with B-cell cancers (including CLL), multiple myeloma and post-allogeneic bone marrow transplant (BMT) is supported by guidelines. [83, 100]

  * IVIG therapy reduces the incidence of bacterial infections in patients with hematologic malignancies to approximately 50% of the incidence without IVIG administration. [4, 34]
* Previously, use of IVIG prophylaxis post-BMT was common for prevention of graft versus host disease (GVHD); however, with improved immunosuppressant regimens, the use of routine IVIG prophylaxis is no longer supported. [100]
* Monthly IVIG infusions of 400 mg/kg are recommended to maintain the serum IgG level.

- HIV-infected children < 13 years of age [92]
  * Current guidelines recommend IVIG use among HIV-infected children who have hypogammaglobulinemia (IgG <400 mg/dL), to prevent serious bacterial infections (SBIs).
  * IVIG is no longer recommended for primary prevention of SBIs in children, unless hypogammaglobulinemia is present. During the pre-HAART (highly-active antiretroviral therapy) era, IVIG was shown to decrease the frequency of bacterial infections and hospitalization in children with AIDS, however only in those not receiving daily Pneumocystis carinii pneumoniae (PCP) prophylaxis.

AUTOIMMUNE (IMMUNE-MEDIATED) DISORDERS
- Pooled immune globulin (IVIG) has been studied and found to be useful in a variety of autoimmune disorders, including hematologic, neuromuscular and infectious disease-related diseases. However, given the rarity of many of these disorders, the evidence for safety and efficacy in some diagnoses is insufficient at this time.
- The mechanism of action of IVIG in autoimmune disorders is thought to include acute neutralization of circulating autoantibodies, toxins, and cytokine modulation, as well as long-term reduction of antibody production and suppression of T-cell cytokines. [1]

Hematologic (immune-mediated) Disorders: [83]

**Acquired Factor VIII inhibitor** [21-25, 60]
- A sufficient treatment course is usually 6-12 weeks before attempting a different immunosuppressive agent. Patients are generally treated until remission (elimination of the inhibitor) occurs, which may take several months.
- Treatment regimens of 1 gm/kg for 2 days or 400 mg/kg for 5 days have been studied. In one study, only 6 of 19 patients responded to IVIG within 40 days of treatment. [60]

**Fetal (neonatal) alloimmune thrombocytopenia (FAIT):** [2, 58, 59, 83]
- ACOG guidelines recommend IVIG as first line treatment for documented fetal thrombocytopenia. [58]
- A trial comparing IVIG treatment with and without dexamethasone in siblings showed that: [2]
  * IVIG treatment was associated with an increase in mean platelet count of 69,000/mm$^3$.
  * There were no instances of intracranial hemorrhages, although hemorrhage had occurred previously in 10 untreated siblings.
- The recommended dose of IVIG is 1 gm/kg/week, increasing to 2 gm/kg/week in refractory cases. [59]

**Idiopathic thrombocytopenia purpura (ITP)** [4,5, 8-10, 34, 83, 84, 106, 122]
- Normal platelet count range is 115,000/mm$^3$ to 440,000/mm$^3$. 

- **Acute ITP**
  * In various studies, 64% to 100% of IVIG recipients attained platelet counts greater than 100,000 cells/mm³ within 7 days. \(^4, 34\)
  * A maximum of 1 gm/kg/day for three or four doses of IVIG on alternate days is recommended. Acute ITP is usually seen in children and typically resolves spontaneously within 2 months.

- **Chronic ITP** \(^4, 8-10\)
  * Current evidence does not support that IVIG alters the natural course of chronic ITP, affects long-term morbidity/mortality, or increases the rate of long-term remission.
  * IVIG is not indicated for the maintenance of platelet counts in chronic ITP; however, IVIG maybe be used episodically in patients with chronic ITP, for acutely low platelet levels.
  * Steroids are considered the first-line treatment of choice for chronic ITP. \(^122\)
  * Although the use of IVIG may be considered as a steroid-sparing adjunctive therapy for chronic ITP, \(^5, 83, 84\) other therapies with a more durable response should be considered, such as splenectomy, rituximab, Promacta (eltrombopag) or Nplate (romiplostim). \(^5, 84\)
  * IVIG may be considered in patients with dangerously low platelet counts (less than 10,000 to 20,000 per mm³ in adults or less than 30,000 per mm³ in children) or patients undergoing an invasive procedure, and therefore may be at an increased risk for significant bleeding, such as intracranial hemorrhage.
  * Choosing Wisely, an evidence-based initiative to promote wise use of medical resources, states that patients with ITP should not be treated in the absence of bleeding or a very low platelet count. Only rarely should patients be treated when platelet counts are above 30,000, such a preparation of surgery or an invasive procedure. Unnecessary treatment exposes patients to potential adverse events and raises the overall cost of care, with unknown clinical benefit. \(^106\)
  * The usual dose of IVIG is 1 to 2 gm/kg divided into equal amounts and given over 2 to 5 days.

- **ITP in pregnancy (a.k.a. Pregnancy-Associated ITP)** \(^44, 83, 84\)
  * The goal of therapy is to minimize the risk of bleeding complications due to thrombocytopenia. \(^44\)
  * Platelet function is typically normal so it is not necessary to maintain platelet count in the normal range. \(^44\)
  * The first line of treatment is prednisone, usual dose 1-2mg/kg/day. \(^44\)
  * IVIG is useful in cases that are resistant to steroids and when a rapid rise in platelets is necessary. A response typically occurs within 6 – 72 hours of IVIG treatment. \(^44\)
  * For patients nearing the end of their pregnancy and preparing for use of epidural anesthesia, IVIG coverage will be considered under “ITP, acute” criteria, for use prior to an invasive procedure. Because the evidence is less useful in determining the exact threshold platelet levels needed for prevention of bleeding, the use of
IVIG is generally at the discretion of the treating anesthesiologist or surgeon, and pregnant patients are managed like non-pregnant patients. [83, 84]

* The American College of Obstetrics and Gynecology (ACOG) recognizes the high cost of IVIG therapy and suggests consultation from a physician experienced in the treatment of ITP when considering use of IVIG therapy. [44]

- Guidelines recommend that, except for the delivery, treatment indications for pregnant women are similar to those currently recommended for any patient.
- At the time of delivery, management of ITP is based on an assessment of maternal bleeding risks associated with delivery, epidural anesthesia, and the minimum platelet counts recommended to undergo these procedures (70 X 10^9/L for epidural placement and 50 X 10^9/L for cesarean delivery).

Post-transfusion purpura (hemolytic transfusion reaction) [1, 83]
- Post-transfusion purpura is a rare condition that can occur in patients undergoing blood transfusions. It typically develops approximately one-week after blood transfusion.
- IVIG may be considered first-line therapy in severely affected patients. [1, 83]
- The recommended dose of IVIG is 500 mg/kg/day for two consecutive days. Rapid platelet recovery has been seen within days of treatment.

Pure Red Cell Aplasia (PRCA), Viral [71, 83]
- Parvovirus B19 infects and lyses red cell precursors, which can cause pure red cell aplasia. IVIG therapy is usually reserved for patients with chronic parvovirus infection and chronic anemia.
- Chronic parvovirus infection with anemia usually occurs in immunocompromised patients. If the immunodeficiency improves, the parvovirus and anemia may spontaneously resolve.
- The usual dose of IVIG is 2-4 grams/kg, divided as 400 mg/kg/day for 5 – 10 days, 1 gm/kg/day for 3 days or 0.5 gm/kg weekly for 4 weeks. Initial treatment courses may be indicated with recurrence of anemia and increase in parvovirus B19 DNA. [71, 83]

Neuromuscular Disorders:

Inflammatory demyelinating polyneuropathy (IDP) [57, 85, 86, 96, 97, 113]
- Acute IDP, including Guillain-Barré syndrome (GBS) [57, 97]
  * IVIG appears to be effective in adult patients with Guillain-Barré syndrome when given within 2 weeks of symptom onset.
  * The recommended IVIG dose is 400 mg/kg/day for 5 days. If relapse occurs within 1-2 weeks of initial therapy, an additional treatment course of IVIG may be effective. Further treatment does not improve outcomes and is not recommended.
- Chronic IDP (CIDP)
  * Clinical guidelines recognize the use of specific diagnostic criteria for CIDP, to exclude other causes of neuropathy and confirm the presence of peripheral nerve demyelination. [85, 113]
Objective criteria include use of electrodiagnostic (EMG) testing, along with additional studies, such as nerve biopsy or lumbar puncture (LP) to confirm elevation of CSF protein.

Given the lack of consensus across guidelines and need to exclude neuropathies unlikely to respond to IVIG therapy, use of objective criteria are required to support a clinical diagnosis of CIDP.

Treatment options include plasmapheresis, IVIG, and corticosteroids.

The usual IVIG dose is 400 mg/kg/day for 5 days, repeated every 6 weeks.

Autoimmune encephalitis: acute demyelinating encephalomyelitis (ADEM) or anti-NMDA receptor encephalitis

- Immune-mediated encephalitis is relatively rare and include ADEM and encephalitis syndromes associated with antibodies against neuronal tissue, such as anti-NMDA receptor encephalitis.
- The differential diagnoses list for autoimmune encephalitis is extensive and may include diagnoses considered investigational in this policy. Therefore, IVIG is considered not coverable, until the diagnosis is clarified.

Acute demyelinating encephalomyelitis (ADEM) [110]

- ADEM can be associated with various neurologic and psychiatric symptoms, including cognitive and speech dysfunction, seizures, dyskinesias, altered consciousness, and autonomic instability.
- High-dose IV corticosteroid therapy is considered the first-line treatment for ADEM, with IVIG or plasma exchange reserved for patients not responding to steroid therapy.
- The usual IVIG dose is 400 mg/kg/day for 5 days.

Anti-NMDA receptor encephalitis (anti-NMDAR) [111, 112]

- Anti-NMDA receptor encephalitis is a specific type of autoimmune encephalitis, diagnosed by detection of IgG antibodies against a subunit of NMDA receptors in serum or CSF. It can be associated with various neurologic and psychiatric symptoms, including cognitive and speech dysfunction, seizures, dyskinesias, altered consciousness, and autonomic instability.
- Based on large case series and years of experience in clinical practice, use of immunosuppression therapy is the standard of care, with corticosteroids, IVIG, plasma exchange, cyclophosphamide, or rituximab. IVIG (400 mg/kg/day for 5 days) in combination with high-dose methylprednisolone or plasma exchange may be useful in treating patients with anti-NMDA receptor encephalitis in the first-line setting. Rituximab and/or cyclophosphamide may be of benefit in patients not responding to IVIG and steroids within 10 days. Children are generally managed with monotherapy (cyclophosphamide or rituximab).

Dermatomyositis (DM), adult and pediatric (juvenile)

- High-dose IVIG is a safe and effective treatment for refractory dermatomyositis unresponsive to corticosteroid therapy. [5,7,27,33,36, 85,86,95]
- For adults, abnormalities on EMG or elevations in CPK are accepted diagnostic criteria.
Juvenile dermatomyositis (JDM) is characterized by a vasculopathy affecting both the muscle and the skin. For pediatric patients, a number of muscle enzymes, including CPK, LDH, AST or aldolase, may be used to confirm the diagnosis. Myositis may also be confirmed by an abnormal muscle biopsy, EMG or MRI. Children can also have specific skin manifestations associated with the dermatomyositis, including Gottron papules on the dorsal surface of the knuckles and heliotrope rash over the eyelids. [107-109]

The recommended IVIG dose is 2 gm/kg per month.

**Lambert-Eaton myasthenic syndrome (LEMS)** [39, 73, 85-87]
- LEMS is a rare acquired autoimmune disorder characterized by proximal weakness of extremities, decreased reflexes, and dryness of mouth and eyes.
- Patients reported improved limb, respiratory muscle, and bulbar muscle strength with IVIG, compared to placebo in a small, randomized crossover trial (n = 9). [73]
- The recommended dose of IVIG is 2 gm/kg administered over 2 – 5 days.

**Multifocal motor neuropathy (MMN)** [6,26,75-79, 85, 86]
- Small, controlled trials demonstrate significant increase in muscle strength associated with IVIG administration, long-term benefits, and safety. [6,26]
- The recommended IVIG dose is 2 gm/kg/month, administered over 2 – 5 days.
- Conduction block is the hallmark of this disease. Additionally, patients with anti-GM1 antibodies show an increased chance of response to IVIG However, anti-GM antibodies are present in only 30-80% of patients with MMN and are not specific to MMN. In addition, patients who lack anti-GM1 antibodies may have a favorable response to IVIG; therefore, the clinical utility of monitoring anti-GM1 antibodies is uncertain. [75]

**Myasthenia gravis (MG)** [85, 86]
- Randomized trials examining short-term treatment of myasthenia gravis with IVIG have shown no difference between IVIG and plasma exchange or IVIG and methylprednisolone [69]
- IVIG may be useful in treating patients with severe myasthenia gravis who fail to respond to the maximum tolerated doses of corticosteroids and/or immunosuppressants. [70]
- There is no evidence to determine whether IVIG improves function or reduces steroid requirements for moderate to severe myasthenia gravis. [69]
- The recommended dose of IVIG is 1 – 2 gm/kg/month administered over 2 – 5 days. [69]

**Paraneoplastic opsoclonus ataxia syndrome (Opsoclonus-myoclonus)** [73,74,85, 101,102]
- Opsoclonus-myoclonus ataxia (OMA) is a rare neurological syndrome characterized by an unsteady gait, brief shock-like muscle spasms, and irregular rapid eye movements and can be a paraneoplastic (e.g., with neuroblastoma) or non-paraneoplastic syndrome.
- IVIG is a therapeutic option for pediatric neuroblastoma patients with paraneoplastic opsoclonus ataxia syndrome, along with other immunologic treatments, including glucocorticoids, cyclophosphamide, mycophenolate and plasma exchange. [85,101]
- Evidence supporting the use of IVIG for OMA consists mainly of retrospective chart reviews and case reports in children and adults. [73,74]
- However, one randomized phase 3 placebo-controlled trial for the use of IVIG for children with opsoclonus-myoclonus associated with neuroblastomas found a reduction in OMA in the IVIG-treated group as compared to placebo (81 versus 41%). All patients
received steroids and chemotherapy. IVIG was dosed 1 gm/kg on days 0 and 1 of each 28-
day cycle.[102]

Refractory pemphigoid bullous (e.g., pemphigus foliaceus, pemphigus vulgaris) [27, 38, 88]
- IVIG is typically given in combination with conventional treatments, such as
  immunosuppressive agents and plasmapheresis, and is discontinued once conventional
  treatment (such as corticosteroids, azathioprine, cyclophosphamide, etc.) takes effect.
  IVIG is not considered a maintenance therapy for pemphigus foliaceus, pemphigus
  vulgaris or other autoimmune mucocutaneous blistering diseases.
- The usual dose of IVIG is 1-2 gm/kg administered over 3 days. This regimen may be
  repeated every 3-4 weeks.

Polymyositis [85, 86, 95]
- Polymyositis is an inflammatory myopathy with no unique clinical features. It is
  typically a diagnosis of exclusion in patients with slowly progressive muscle weakness.
  Traditional therapies include immunosuppressive medications or steroids.
- IVIG may be considered for patients not responding to first-line immunosuppression.
- The recommended dose of IVIG is 2 gm/kg/month administered over 2 – 5 days.

Stiff Person Syndrome [37, 85]
- Sixteen patients were randomized to IVIG or placebo for 3 months, and then crossed
  over to the alternate treatment after a 1-month washout period. IVIG patients
  demonstrated decreased stiffness scores, decreased frequency of falls, ability to walk
  more easily without assistance, and improved ability to perform work-related tasks.
  Benefits lasted 6 weeks to 1 year without additional treatment.
- The usual dose of IVIG is 400 mg/kg/day for 3 – 5 days.

Systemic Lupus Erythematosus
- Small case series suggest some benefit from treatment with IVIG when compared to
cyclophosphamide.
- The usual dose of IVIG is 400 mg/kg/day for 5 days.

Transplant (Solid Organ):
Antibody-mediated rejection [27, 68, 98]
- Acute allograft (organ) rejection may be cellular (T-cell mediated) or humoral (antibody-
  mediated) (AHR, AMR).
- Pre-treatment with IVIG (desensitization) may reduce the risk of AMR in highly
  sensitized renal transplant patients. [27,98]
- A randomized, double-blind trial comparing IVIG to placebo in 101 highly sensitized
  renal transplant candidates concluded that IVIG is better than placebo in improving
  transplantation rates. [68]
- Acute humoral rejection (AHR) is also an AMR and can occur outside of the peri-
  operative period, but most commonly within 6 months after transplant. The diagnosis is
  confirmed by a renal biopsy. The goal of therapy is early antibody elimination with IVIG,
  pheresis, or a combination of modalities.
- A variety of protocols have been developed for the use of IVIG in treating AMR after
  solid organ transplant. [27,98]
Other Miscellaneous Disorders:

**Kawasaki syndrome** [4, 34-35,99]

- IVIG in conjunction with aspirin given within the first 10 days of illness can reduce the incidence of coronary artery abnormalities by 65% - 78%, compared with treatment with aspirin alone. [4, 34-35,99] IVIG is not effective if more than ten days have elapsed from onset of symptoms.
- The usual dose of IVIG is 2 gm/kg as a single dose but may be repeated if the patient fails to defervesce. [99]

**BK viremia (BK polyomavirus in solid organ transplantation)** [123-126]

- The American Society of Transplantation Infectious Diseases Community of Practice (AST-IDCOP) recommends a stepwise reduction of immunosuppressive therapy until serum BK levels are no longer detectable. Although there are no randomized controlled trials, this approach is supported by a meta-analysis and a number of large prospective observational studies reporting successful clearance BK virus in 80% to 100% of cases. [123]
- Reduction of immunosuppressants is often done in a stepwise fashion:
  * Immunosuppressants for solid organ transplants include calcineurin inhibitors (such as cyclosporine and tacrolimus), antimetabolites (such as azathioprine and mycophenolate), and steroids (prednisone).
  * Immunosuppression reduction may begin with a reduction of either the calcineurin inhibitor or antimetabolite by 50%, eventually leading to a discontinuation of the antimetabolite. [123]
- The highest IVIG dose studied in BK viremia was 2g/kg, given over several days to weeks. [124-126] The optimum dose, frequency, and duration for IVIG use in BK viremia varies greatly and needs further evaluation. However, there is no evidence to support higher, longer, or repeated doses of IVIG.

**OTHER CONDITIONS** [1, 5, 13-15, 17-20, 27, 46-52, 54, 127-130]

- The University Hospital Consortium (UHC), an alliance of 68 academic health centers, performed a critical assessment of off-label IVIG uses.
- The UHC determined published data to be inadequate to support the use of IVIG in various conditions. [1]
- **Asthma:** Further trials in asthma patients are necessary to delineate patient subsets that would best benefit from IVIG therapy and define optimal dosing in this condition. [17-20]
- **HIV (adults):** The use of IVIG in HIV-infected adults is not definitive to substantiate a positive benefit on overall long-term health outcomes. [3]
- **Multiple sclerosis, progressive:** There is not substantial evidence to support IVIG in the treatment of chronic progressive multiple sclerosis. [28-30, 64]
- **Multiple sclerosis; relapsing-remitting type (RRMS):** IVIG may provide some benefit in reducing the acute exacerbation rate in relapsing-remitting multiple sclerosis. [5, 27, 54]
  * Trials are generally limited to small numbers of patients and have lacked complete data on clinical outcomes.
* Current evidence suggests little benefit with regard to slowing disease progression.

* The American Academy of Neurology does not consider IVIG to be a first-line therapy in the treatment of relapsing-remitting multiple sclerosis.

- **Neuropathy, other (not listed in the criteria):** Other neuropathies, such as small fiber neuropathy and autonomic autoimmune neuropathy NOS

  * The differential diagnoses list for neuropathy is extensive and may include diagnoses considered investigational in this policy.

  * Therefore, IVIG is not coverable until the diagnosis is clarified, for evaluation versus coverage criteria.

  * **Specific to small fiber neuropathy:** The available literature for the use of IVIG for small fiber neuropathy is limited to case reports/case series, along with one small double-blind, placebo-controlled trial in patients with painful idiopathic small fiber neuropathy (I-SFN). [127, 128]

    - The trial in idiopathic SFN reported no significant effect on pain in patients with painful I-SFN with use of IVIG. It would require 10 patients to be treated for a single person to have a 1-point change in an 11-point pain scale. Disease modification effect was not measured.

    - Available case reports/case series reported inconsistent and transient results. Therefore, the use of IVIG for small fiber neuropathy is considered investigational and not coverable.

    - The underlying cause needs to be treated (such as sarcoid, diabetes, Sjogren).

    - Pain treatment options include antidepressants [tricyclics (TCAs), serotonergic norepinephrine reuptake inhibitors (SNRIs)], anticonvulsants, corticosteroids, topical pain cream, analgesics, and tramadol.

* **Specific to autoimmune neuropathy** (a.k.a. immune-mediated neuropathy): [129, 130]

  - The diagnosis of autoimmune neuropathy, including autoimmune autonomic neuropathy, requires exclusion of other immune-mediated neuropathy causes, such as Guillain-Barre Syndrome (GBS), demyelinating polyneuropathy, and multifocal motor neuropathy (MMN).

  - For autoimmune neuropathy associated with systemic autoimmune disease (such as vasculitis, rheumatoid arthritis, lupus, Sjogren syndrome), the underlying cause needs to be treated.

  - The available literature for the use of IVIG for autoimmune autonomic neuropathy is limited to case reports/case series. Other reported treatment options include mycophenolate, prednisone, azathioprine, and rituximab alone or in combination. Additional evidence is needed to establish the benefit of IVIG.

- **Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS) / Pediatric Acute-onset Neuropsychiatric Syndrome (PANS):** Case series and case reports, as well as initial low-quality studies in small numbers of subjects, have suggested that IVIG may be efficacious in PANS/PANDAS. However, good quality, randomized, double-blinded trials have failed to show any significant difference.
between IVIG and placebo during the blinded study period. Although a recent consensus statement from the PANS Research Consortium indicates that IVIG has been used in clinical practice for PANS/PANDAS, this statement also acknowledged the lack of high-quality evidence in this area. There is currently insufficient evidence that IVIG is safe and effective for the treatment of PANS/PANDAS, or that it is more effective than any other approach. [109-111]

- **Post-Polio:** Two published trials of post-polio syndrome failed to demonstrate a statistically significant benefit compared to placebo in improvement of muscle strength. [65, 66]

- **Recurrent pregnancy loss, or recurrent spontaneous abortion** (due to anti-phospholipid or anti-cardiolipin antibodies):
  * Recurrent pregnancy loss is defined as three or more pregnancies resulting in spontaneous abortion prior to 20 weeks of gestational age. These women often have immunologic abnormalities, particularly antiphospholipid antibodies. [27]
  * IVIG has not been established as a safe or effective therapy to prevent recurrent spontaneous abortion in women with immunologic abnormalities, such as elevated natural killer cells, defective cytokines, or defective growth factors. [13-15, 62]
  * One randomized controlled trial comparing IVIG to thyroid replacement therapy for the prevention of miscarriages found IVIG to be less effective. There was a statistically significant higher rate of live birth among women treated with thyroid replacement therapy. [61]
  * A small randomized controlled trial in 85 women with a history of three or more spontaneous abortions before 10 weeks of gestation compared low molecular heparin (LMW) plus aspirin with IVIG therapy. The percentage of live births in the LMW plus aspirin versus the IVIG treatment group was 72.5% and 39.5%, respectively. [80]
  * A randomized controlled trial in 82 women with a history of idiopathic secondary miscarriage compared live birth rates in those who received intravenous immune globulin versus placebo infusion (saline). There was no statistical difference between treatment groups. [82]
  * ACOG recommendations state:
    - If results are positive for the same antibody on two consecutive tests 6 to 8 weeks apart, initiate heparin and low-dose aspirin with next pregnancy attempt.
    - IVIG is not effective in preventing recurrent pregnancy loss. [55]

- **Additional conditions** for which published data is determined to be inconclusive or inadequate to support the use of IVIG include Alzheimer's disease, atopic dermatitis, recurrent *C. difficile*, complex regional pain syndrome (CRPS), narcolepsy/cataplexy, neonatal hemochromatosis, chronic sinusitis, tic disorder, delayed pressure urticaria, systemic sclerosis (diffuse cutaneous, dcSS) and toxic epidermal necrolysis. [27, 46-52, 63,103, 104, 114]
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These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
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### Appendix I: Primary Humoral Immunodeficiencies, as defined by the following diagnostic criteria:

1. X-linked agammaglobulinemia (congenital agammaglobulinemia) diagnosis accompanied by marked deficits or absence of all five immunoglobulin classes (IgG, IgM, IgA, IgE, and IgD), decreased circulating B lymphocytes, and normal numbers of functioning T lymphocytes.

OR

2. Hypogammaglobulinemia (a general term describing serum levels of IgG which are below the lower limits of normal).

OR

3. Common variable immunodeficiency (CVID; acquired hypogammaglobulinemia; adult onset hypogammaglobulinemia; dysgammaglobulinemia) documented with low to normal IgG levels and the inability to produce an antibody response to protein (e.g., tetanus) or carbohydrate antigens (e.g., Pneumovax).

OR

4. Immunoglobulin subclass deficiency (e.g., X-Linked immunodeficiency with hyper-IgM) accompanied by very low serum concentrations of IgG, IgA, and IgE, with normal or, more frequently, greatly elevated polyclonal IgM concentrations.

OR

5. Combined immunodeficiency syndromes, including Wiskott-Aldrich syndrome, accompanied by marked deficits in IgG, IgA, and IgM, low lymphocyte counts, and absent or below normal levels of both B- and T-lymphocytes.
### Revision History

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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| **6/17/2022** | - Clarified intent of criteria for refractory adult myositis/dermatomyositis to require trial steroids or other immunosuppressants.  
- Quantity limits and reauthorization:  
  ▪ Clarified policy quantity limits specific to SCIG and reauthorization language (no change to intent).  
  ▪ Modified reauthorization criteria for Paraneoplastic opsoclonus-myoclonus ataxia.  
- Investigational Uses: Added Encephalitis NOS and Neuropathy NOS.  
- Updated HCPCS Codes. |
| **4/21/2021** | - Coverage criteria and quantity limit for use in BK viremia added.  
- Continuation of therapy (COT) language updated (no change to intent). |
| **10/28/2020** | - Clarified policy quantity limits and intent.  
- Added coverage for postexposure VZV prophylaxis. |
| **4/22/2020** | - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |
| **07/24/2019** | - Add Asceniv (IVIG), Xembify (SCIG) and Cutaquig (SCIG) to policy (new products)  
- Clarified coverage criteria for ADEM and anti-NMDA receptor encephalitis are specific to those two specific diagnoses. ADEM and anti-NMDA receptor encephalitis are types of autoimmune encephalitis. Autoimmune encephalitis (not otherwise specified) is considered a non-specific diagnosis and is not coverable.  
- Broadened coverage criteria for:  
  ▪ ITP of pregnancy (align platelet count to guidelines; 20,000)  
  ▪ LEMS (remove step therapy)  
- Investigational Uses:  
  ▪ Added PANDAS/PANS  
  ▪ Removed Behçet’s syndrome, Neonatal hemolytic disease, Multiple Sclerosis, Uveitis and Wegener’s granulomatosis.  
- Clarified Quantity Limits (QL):  
  ▪ Added QL per dose (and month) for SCIG and IVIG products  
  ▪ Modified QL for treatment of immune-mediated rejection to allow up to six months if re-transplant is the treatment plan  
- Update HCPCS Codes |
| **08/17/2018** | - Added Panzyga to policy  
- Added investigational use: Complex Regional Pain Syndrome  
- Updates HCPCS Codes |
| **1/18/2018** | Add Gammaked to policy. |
| **4/14/2017** | - Clarify coverage criteria for CIDP  
- Add coverage criteria for refractory acute demyelinating encephalomyelitis (ADEM) and anti-NMDA encephalitis  
- Clarify re-authorization period for Immunodeficiency (Replacement Therapy) |
<p>| <strong>11/11/2016</strong> | Removed site of care language from the individual drug policy; however, requirements still apply. Reference to Site of Care Review, dru408 is provided as part of criterion IA. |</p>
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<tr>
<td>9/15/2016</td>
<td>Add Cuvitru to policy.</td>
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| 4/8/2016      | - Reworded coverage criteria for Polymyositis to Refractory Myositis. Move Dermatomyositis (juvenile) criteria, to follow after Refractory Myositis.  
|               | - Delete requirement for IgG levels for reauthorization for hypogammaglobulinemia in re-authorization table (typographical error). |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru029

**Topic:** Synagis, palivizumab, Respiratory syncytial virus (RSV) immune prophylaxis

**Date of Origin:** January 1997

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Synagis (palivizumab) is an antibody used in the prevention of respiratory syncytial virus (RSV) which may cause lower respiratory tract disease in certain high-risk infants and children younger than 24 months.
Policy/Criteria

Most contracts require pre-authorization approval of Synagis (palivizumab) prior to coverage.

I. Continuation of therapy (COT): Synagis (palivizumab) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Synagis (palivizumab) may be considered medically necessary for children when there is clinical documentation (including, but not limited to chart notes) showing that any of the criteria in A through F below are met:

A. Chronic lung disease (CLD) of prematurity [also known as bronchopulmonary dysplasia (BPD)]: Infants or children with CLD of prematurity when criteria 1, 2, and 3 below are met.

1. Gestational age less than 32 0/7 weeks.

AND

2. A requirement for greater than 21% oxygen for at least 28 days after birth).

AND

3. Chronological age at the start of the current RSV season, as defined by criterion a or b below:

a. Less than or equal to 12 months chronological age.
b. Greater than 12 months but less than or equal to 24 months chronological age for children who continue to require medical intervention (supplemental oxygen, chronic corticosteroids, or diuretic therapy) during the 6-month period before the start of the second RSV season.

**PLEASE NOTE:** In the absence of ongoing medical intervention for CLD (medications or oxygen), Synagis (palivizumab) is NOT coverable for children age 12-24 months.

**OR**

**B.** Congenital heart disease (CHD): Infants or children with hemodynamically significant congenital heart disease who are less than or equal to 12 months chronological age at the start of the current RSV season when criterion 1, 2, or 3 is met.

1. Receive medication to control congestive heart failure or will receive medication as a result of a planned cardiac surgery.

**OR**

2. Have moderate to severe pulmonary hypertension.

**OR**

3. Have cyanotic heart disease.

**PLEASE NOTE:** The use of Synagis (palivizumab) is considered not medically necessary for children with CHD greater than 12 months chronological age at the start of the current RSV season.

**OR**

**C.** Infants less than or equal to 12 months chronological age with neuromuscular disease or congenital abnormality that impairs the ability to clear secretions from the upper airway because of ineffective cough.

**OR**

**D.** Estimated gestational age less than 29 weeks: Infants less than or equal to 12 months chronological age (post-natal age) at the onset of the current RSV season and born before 29 0/7 weeks gestation.

**OR**

**E.** Immunocompromised: Infants or children less than 24 months chronological age who will be profoundly immunocompromised during the current RSV season due to one of 1 through 4 below.

1. Solid organ transplant.

**OR**

2. Hematopoietic stem cell transplant.
OR
3. Chemotherapy.

OR
4. Immunocompromised due to other conditions with either lower respiratory tract symptoms (including use of ongoing supplemental oxygen therapy), lymphopenia, or corticosteroid therapy.

OR
F. Cystic fibrosis: Infants or children with cystic fibrosis when criterion 1 or 2 below is met for the chronological ages indicated at the start of the current RSV season.
   1. Less than or equal to 12 months chronological age with clinical evidence of chronic lung disease and/or nutritional compromise.

OR
2. Greater than 12 months but less than or equal to 24 months chronological age when 1 or more of the following are present:
   a. Manifestations of severe lung disease (previous hospitalization for pulmonary exacerbation in the first year of life or chest imaging abnormalities that persist when stable).
   b. Weight for length less than the 10th percentile.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers Synagis (palivizumab) coverable only under the medical benefit (as a provider-administered medication).
B. When a member meets the applicable criteria above, coverage is authorized annually during the local RSV season.
C. When a member meets the applicable criteria above, Synagis (palivizumab) will be authorized in quantities of up to 5 doses, up to 15 mg/kg, for monthly dosing until the end of the current RSV season.

IV. RSV immunoprophylaxis with Synagis (palivizumab) is considered not medically necessary for any of the following:
A. Infants who do not meet the criteria above.
B. Infants and children with hemodynamically insignificant heart disease, such as mild cardiomyopathy not requiring medical therapy, secundum atrial septal defect, small ventricular septal defect, pulmonic stenosis, uncomplicated aortic stenosis, mild coarctation of the aorta, and patent ductus arteriosus.
C. Infants with lesions adequately corrected by surgery unless they continue to require medication for congestive heart failure (and criteria IB. above is met).
D. Patients with cystic fibrosis who do not meet the criteria above.
E. Patients with Prader-Willi Syndrome (PWS) who do not meet the criteria above.
F. Patients with recurrent wheeze who do not meet the criteria above.
G. Patients with Down syndrome who do not meet the criteria above.
V. Synagis (palivizumab) is considered investigational when used for any other indication, including:
   A. RSV immunoprophylaxis in adults.
   B. Treatment of RSV infections (in children or adults).

**Position Statement**

**Summary**

- The intent of the policy is to cover Synagis (palivizumab) as respiratory syncytial virus (RSV) immunoprophylaxis in doses it has been studied to be safe and effective, for specific children who have risk factors or other underlying medical conditions that would predispose them to significant respiratory complications due to RSV infection.

- Synagis (palivizumab) has only been proven to decrease the chance of being hospitalized from RSV in some pediatric patients who are at high risk of severe RSV disease. [1,2] The evidence to support the efficacy of Synagis (palivizumab) is limited and unreliable, and the benefit of RSV immunoprophylaxis with Synagis (palivizumab) may be modest.

- Synagis (palivizumab) has not been shown to prevent mortality from RSV infection.


**Clinical Efficacy**

- Clinical trials have demonstrated efficacy for Synagis (palivizumab) in reducing hospitalization due to RSV infection, and reductions in other measures of severity of RSV infection. [5]

- Impact RSV Study [Synagis (palivizumab) versus placebo] [5]
  * The Impact RSV Study reported a 55% reduction in RSV-related hospitalizations (p < 0.001). RSV hospitalization was 4.8% in the Synagis (palivizumab) group compared to 10.6% in the placebo group (number needed to treat = 17).
  * Among secondary endpoints, the incidence of intensive care unit (ICU) admission during hospitalization for RSV infection was lower among patients receiving Synagis (palivizumab) than among those receiving placebo (1.3% and 3.0%, respectively), but there was no difference in the mean duration of ICU care between the two groups.
  * A cohort study showed that Synagis (palivizumab) administered to infants born at 32 to 35 weeks estimated gestational age did not result in direct cost savings related to hospitalization or ambulatory care. [6]

- In the Synagis (palivizumab) CHD Study, Synagis (palivizumab) reduced RSV hospitalizations by 45% (p < 0.003) which correlates to a number needed to treat of 23. [7]

- In a double-blind, randomized, placebo-controlled trial of 429 otherwise healthy preterm infants with recurrent wheeze, Synagis (palivizumab) treatment resulted in a relative reduction in the total number of wheezing days during the first year of life. However, Synagis (palivizumab) is considered not medically necessary for this condition as there is no clear correlation to decreased wheezing days and effect on health outcomes.
National Guidelines

American Academy of Pediatrics (AAP) \([2-4]\)

- The AAP recognizes the high cost-to-benefit ratio for RSV immunoprophylaxis with Synagis (palivizumab). Therefore, guidelines define the pediatric populations that best benefit from RSV immunoprophylaxis.
- The AAP provides recommendations for RSV immunoprophylaxis in children who have risk factors or other underlying medical conditions that would predispose them to respiratory complications due to RSV infection.
- The AAP guidance also includes detailed lists of the types of patients not at increased risk of RSV infection and therefore should not receive RSV immunoprophylaxis.
- The AAP recommends that parents can reduce the risk of an RSV infection by practicing good handwashing, washing blankets and toys regularly, limiting exposure to environmental pollutants, not smoking around their children, and avoiding crowds during RSV season.
- Regarding exposure to indoor air pollutants, the AAP recommends that infants at high risk for RSV infection should never be exposed to tobacco smoke.
- Breastfeeding should be encouraged for all infants; however, lack of breastfeeding is not a defined risk for RSV. Therefore, RSV immunoprophylaxis is not specifically recommended for infants unable to breastfeed.
- Determination of RSV season: see Dosing section below.

Rationale for Changes to National Guidelines

- Updated guidance for the recommended use of Synagis (palivizumab) was issued in July 2014 and re-affirmed in the most recent Red Book (2021). Significant changes from previous recommendations include the following: \([2-4]\)
  
  * Synagis (palivizumab) is no longer recommended for otherwise healthy infants born at or after 29 0/7 weeks. The AAP continues to recommend avoidance of crowds and group childcare during the RSV season for high-risk infants.
    - A study performed by the New Vaccine Surveillance Network (NVSN), sponsored by the Centers for Disease Control and Prevention (CDC) found that some previously reported potential risk factors (e.g., siblings in the household, child-care attendance) were not associated with a significantly increased risk of RSV hospitalization.
    - This same study also found that the RSV hospitalization rate for preterm infants was not significantly different from the rate for term infants (4.6/1000 and 5.3/1000, respectively); although, infants born at less than 30 weeks’ gestation had a higher risk of RSV hospitalization than did infants born at 30 to 33 weeks gestation.
    - Additional cohort studies in various states and varying groups of preterm infants also support that the greatest increase in risk of RSV hospitalization is in preterm infants born before 29 weeks gestation.
  
  * Synagis (palivizumab) is no longer recommended in the second year of life except for some children with chronic lung disease and cystic fibrosis, and for some profoundly immunocompromised children.
* In a prospective population-based surveillance study of 5,067 children younger than five years, 75% of those hospitalized were younger than 12 months.
  - There is limited safety data and no efficacy data to support the use of Synagis (palivizumab) in the second year of life, RSV hospitalization rates decline for all children with the second season, regardless of the presence or absence of comorbidities.
* The definition of chronic lung disease and the associated recommendations have been clarified.
* Guidance for use of Synagis (palivizumab) in some infants with hemodynamically significant CHD, immunocompromised children and some children with cystic fibrosis has been provided.

**Hemodynamically Significant CHD**

- Certain children who are 12 months or younger with hemodynamically significant CHD may benefit from palivizumab prophylaxis. Children with hemodynamically significant CHD who are most likely to benefit from immunoprophylaxis include infants with acyanotic heart disease who are receiving medication to control congestive heart failure and will require cardiac surgical procedures and infants with moderate to severe pulmonary hypertension.

**Immunocompromised**

- RSV infection in immunocompromised children and adults can progress to respiratory failure and death. In several retrospective analyses of RSV-infected individuals, the majority of deaths that occurred were in those with lower respiratory tract disease. Profound lymphopenia (< 100 cells/mm³) was associated with progression to lower respiratory tract disease, and, therefore, is a risk factor for poor outcomes due to RSV infection.
- Other risk factors for poor outcomes due to RSV infection include chronological age younger than two years, lower respiratory tract symptoms at presentation, and corticosteroid therapy.

**Cystic fibrosis**

- While routine use of Synagis (palivizumab) is not recommended in children with cystic fibrosis, it may be considered when other conditions (e.g., chronic lung disease, nutritional compromise) are present.
- Two recent reviews of RSV infection in infants with cystic fibrosis concluded that they may be at a slightly higher risk of hospitalization; however, there is insufficient data to support a universal recommendation for this group.

- When Synagis (palivizumab) is recommended, it may be given for up to 5 monthly doses for qualifying children (see Dosing below).

**Safety**

- Hypersensitivity reactions have been reported on initial exposure or re-exposure to Synagis (palivizumab). [1]
- Rare cases of anaphylaxis (< 1 case per 100,000 patients) have been reported following re-exposure to Synagis (palivizumab). [1]

**Dosing**

- RSV immunoprophylaxis is initiated at the onset of the annual RSV season and terminated at the end of RSV season.[2]
  
  * Determination of RSV season: Season onset can be determined in real time by identifying the first week of 2 consecutive weeks that RSV RT-PCR test positivity is 3% or greater or antigen detection positivity is 10% or greater. [2]
  
  o Per the National Respiratory and Enteric Virus Surveillance System (NREVSS) in 2013, the onset week in an area (national, regional, or state) is defined as the first of 2 consecutive weeks when the weekly mean of the percentages of specimens testing positive for RSV antigen in all reporting laboratories in the area is ≥ 10%. [9]
  
  o However, since 2014, most laboratories replaced RSV antigen tests with PCR testing (RSV RT-TR). [10]
  
  o Reporting by individual state and county health departments may vary. Either test result can be used for the purposes of this coverage policy.

  * The offset is the last of 2 consecutive weeks when the mean percent positive drops below this threshold. The season duration is the onset week, the weeks between onset and offset, and the offset week. The peak is the week when the mean percentage of positive RSV antigen tests is the highest. [9]

  * In most areas of the United States, with the exception of Alaska and Florida, the usual time for the beginning of the RSV season is October to December, and termination is March to early April. [2]

  * Regional differences account for a later RSV season experienced in the Pacific Northwest, which is typically from November through April. [8]

  * The onset of the RSV season is variable in different regions of Florida. Despite this variation, a maximum of 5 doses of palivizumab is recommended to provide 6 months of protective serum concentrations of palivizumab. Use of Florida Department of Health data may be helpful to determine start date of palivizumab prophylaxis.

  * Alaska Native populations in southwest Alaska experience a higher risk of hospitalization due to RSV and have a longer RSV season. Given the differences in epidemiology of RSV and the cost of emergency air transportation out of remote locations, eligibility for palivizumab prophylaxis may differ from infants in the continental United States. Use of RSV surveillance data from the state of Alaska may be helpful to determine start and stop date of palivizumab prophylaxis.

  * Data from the past year’s surveillance season is used as a predictor for the timing of the next year’s outbreak. This information is updated annually. For current RSV trends, refer to:

The recommended treatment course for Synagis (palivizumab) from the prescribing information is up to 5 total doses. Doses should be administered every 30 days starting in early November. [2]

The AAP confirms the recommendation of a maximum of 5 total doses with the following statement: [3,4]

“Results from clinical trials indicate that palivizumab trough serum concentrations more than 30 days after the fifth dose will be well above the protective concentration for most infants. Five monthly doses of palivizumab will provide more than 20 weeks of protective serum antibody concentration. In the continental United States, a total of five monthly doses for infants and young children with congenital heart disease, CLD, or preterm birth before 32 weeks gestation (31 weeks, 6 days and younger) will provide an optimal balance of benefit and cost, even with variation in season onset and end.

Children who qualify for palivizumab prophylaxis for the entire RSV season should receive palivizumab only during the 5 months following the onset of RSV season in their region (maximum of 5 doses), which should provide coverage during the peak of the season, when prophylaxis is most effective.”

The AAP Red Book (2021-2024) reaffirms the position in the 2014 guidance: [2]

“Because 5 monthly doses of palivizumab at 15 mg/kg/dose will provide more than 6 months of serum palivizumab concentration above the desired serum concentration for most infants, administration of more than 5 monthly doses is not recommended within the continental United States. Children who qualify for palivizumab prophylaxis should receive the first dose at the onset of the RSV season. For qualifying infants born during the RSV season, fewer than 5 doses will be needed to provide protection until the RSV season ends in their region (maximum of 5 doses).

A small number of sporadic RSV hospitalizations will occur before or after the main season in many areas of the United States, but the greatest benefit from prophylaxis is derived during the peak of the season and not when the incidence of RSV hospitalization is low.”

Although Synagis (palivizumab) is NOT coverable in infants and children with stable congenital heart disease (CHD), operationally, Synagis (palivizumab) criterion B.1. “Receive medication to control congestive heart failure” would be met on the day of a planned surgery. Therefore, this criterion would be considered “met” two weeks prior to the planned surgical date, to allow for adequate prophylaxis lead-time. However, Synagis (palivizumab) criteria would be met for coverage only if the other criteria are met for CHD, namely age less than or equal to 12 months.
Cross References

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<td>90378</td>
<td>Respiratory Syncytial Virus Immune Globulin (RSV-IgM), IM Use, 50 mg, Each</td>
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References

Revision History

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<tr>
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<tr>
<td>6/17/2022</td>
<td>Added clarification in “Chronic lung disease” and “Immunocompromised due to other conditions” criteria.</td>
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<tr>
<td>7/16/2021</td>
<td>Added clarification in congenital heart disease.</td>
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<tr>
<td>7/22/2020</td>
<td>Added COT language. No other criteria changes with this annual update.</td>
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<td>7/24/2019</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru048

Topic: Myobloc, rimabotulinumtoxinB

Committee Approval Date: January 22, 2020

Effective Date: February 15, 2020

Date of Origin: December 14, 2001

Next Review Date: January 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Botulinum toxin is a neurotoxin that is injected into a muscle to cause temporary paralysis or relaxation of that muscle. This policy covers the one commercial botulinum toxin type B product, rimabotulinumtoxinB (Myobloc). Botulinum toxin type A products (Botox, Dysport, and Xeomin) are covered in a separate policy.
Policy/Criteria

Most contracts require pre-authorization approval of rimabotulinumtoxinB prior to coverage.

I. Continuation of therapy (COT): RimabotulinumtoxinB may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A. and B. below are met.

A. The patient is established on this therapy AND one of the following situations applies (criteria 1., 2., or 3 below):

1. Any potentially cosmetic indications, including hyperhidrosis, may be coverable when full policy criteria below are met, including reauthorization criteria and quantity limit.

OR

2. Prior to current health plan membership AND the medication was covered by another health plan.

   Note: If the diagnosis is not listed in the coverage criteria below, written documentation of coverage must be provided, such as an approval letter or paid claim.

OR

3. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.

AND

B. If the diagnosis is not listed in the coverage criteria below OR is considered potentially cosmetic, documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria, is provided.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

OR

II. New starts (treatment-naïve patients): RimabotulinumtoxinB may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) showing that criterion A, B, or C is met.

A. Cervical dystonia or spasmodic torticollis, when criteria 1 and 2 below are met:

1. Documentation of involuntary contractions of the neck muscles resulting in twisting and repetitive movements, and/or abnormal postures.

AND

2. Documented pain or functional impairment originating from the dystonia.

B. Sialorrhea (drooling), excessive.
C. **Urinary incontinence** due to detrusor overactivity, either idiopathic or due to neurogenic causes (e.g., spinal cord injury, multiple sclerosis), or incontinence due to overactive bladder (OAB), when therapy with anticholinergic agents is ineffective or not tolerated.

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services does not consider rimabotulinumtoxinB to be a self-administered medication.
   B. When pre-authorization is approved, rimabotulinumtoxinB may be authorized in quantities up to four injection treatments within a 48-week period.
   C. **Reauthorization:** Authorization may be reviewed at least every 12 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. RimabotulinumtoxinB is considered investigational for all other conditions, including, but not limited to:
   A. Carpal tunnel syndrome
   B. Hyperhidrosis (such as axillary or palmar)
   C. Spasticity not otherwise specified (other than spasmodic torticollis), such as:
      1. Cerebral palsy (CP)-related spasticity
      2. Hemifacial spasm
      3. Spasmodic dysphonia
      4. Spasmodic dystonia
      5. Spastic movement disorders in children
      6. Spastic trismus, including TMJ
      7. Upper limb spasticity following stroke

Position Statement

*Summary*
- RimabotulinumtoxinB is a form of botulinum toxin (type B) and is approved for the treatment of cervical dystonia or spasmodic torticollis to reduce the severity and pain associated with abnormal neck position.
- RimabotulinumtoxinB is also used for reduction of sialorrhea in patients with a variety of neurological disorders. The goal of therapy is to reduce sialorrhea-associated complications, such as aspiration pneumonia or skin breakdown. For urinary incontinence due to detrusor overactivity, rimabotulinumtoxinB may be a treatment option for patients with symptoms not responding to other treatment options.
- The intent of this policy is to allow coverage for specific diagnoses where there is demonstrated safety and efficacy from clinical trials to support their use, including spasmodic conditions, and other specific indications.
- Botulinum toxins (BTX-A and BTX-B) have also been studied in many different conditions where muscle tension is thought to play a role. The quality of evidence from the majority of these studies is poor.
- FDA labeling indicates that units of rimabotulinumtoxinB cannot be compared to or converted into units of any other botulinum toxin. Therefore, the efficacy, dosing and safety of rimabotulinumtoxinB cannot be based on extrapolation from other studies using other botulinum toxin serotypes.
- Use of botulinum toxin (all serotypes) for treatment of wrinkles or other cosmetic conditions is considered not medically necessary and frequently excluded by contract.

Clinical Efficacy

Cervical Dystonia or Spasmodic Torticollis
- Cervical dystonia (or spasmodic torticollis) is characterized by involuntary contractions of the neck muscles resulting in twisting and repetitive movements, and/or abnormal postures.
- Results from three clinical studies support the efficacy of rimabotulinumtoxinB in reducing neck pain and the severity of the abnormal head position associated with cervical dystonia or spasmodic torticollis in patients previously responsive to BTX-A or those patients who no longer respond to BTX-A.

Sialorrhea
- Anatomically guided injections of rimabotulinumtoxinB into the parotid and submandibular glands appear to effectively improve sialorrhea in patients with Parkinson's disease and amyotrophic lateral sclerosis (ALS). A randomized controlled trial demonstrated a decrease in frequency and severity of sialorrhea in children with cerebral palsy who received rimabotulinumtoxinB injected into the salivary glands.

Urinary Incontinence due to overactive bladder (OAB)
- Injection of rimabotulinumtoxinB into the bladder appears to improve urinary urgency, frequency and nocturia in patients with refractory detrusor overactivity.
- A Cochrane review concluded both botulinum type A and B formulations are effective treatment options for urinary incontinence due to refractory detrusor overactivity due to neurogenic or idiopathic OAB.

Use of botulinum toxic type B in other conditions
- The evidence for the use of rimabotulinumtoxinB in a variety of conditions is limited to pilot trials and case reports, including hyperhidrosis (axillary and palmar), carpal tunnel syndrome, and myofascial pain due to nerve entrapment (e.g. piriformis syndrome or shoulder impingement). The evidence from these trials is of poor quality and the response to therapy was variable. Larger, well-designed trials are necessary to confirm the results, as well as establish benefit relative to standard of care treatments.
- Similarly, small pilot studies, case reports and observational studies have suggested potential benefit of rimabotulinumtoxinB in the treatment of various spastic disorders (other than spasmodic torticollis), including spasmodic dystonia, upper limb...
spasticity following stroke, \cite{18,19} spastic movement disorders in children, \cite{20} arm
dystonia in children with cerebral palsy, \cite{21} spastic trismus a muscle spasm of the jaw,
which may include the temporomandibular joint (TMJ), \cite{22} and hemifacial spasm. \cite{23}
The evidence from these trials is of poor quality. Larger, well-designed clinical trials are
needed to assess safety and efficacy of rimabotulinumtoxinB in these conditions.

**Safety** \cite{24}

- The most commonly reported adverse events observed in clinical trials of
rimabotulinumtoxinB include dry mouth, dysphagia, dyspepsia, and injection site pain.
- All botulinum toxin products have a boxed warning and Risk Evaluation and Mitigation
Strategy (REMS) program for the potential for toxin to spread from the site of injection
and produce symptoms consistent with botulinum toxin effects. Symptoms may include
asthenia, generalized muscle weakness, diplopia, blurred vision, ptosis, dysphagia,
dysphonia, dysarthria, urinary incontinence and breathing difficulties and may occur
hours to weeks after injection. Swallowing and breathing difficulties can be life
threatening. Deaths have been reported.
- The safety, efficacy and dosage of botulinum toxins have not been established for any
condition in children less than 12 years of age.

### Cross References

| Off Label Use of Botulinum Toxin, BlueCross BlueShield Association Medical Policy, 5.01.05; Reviewed Date: 11/2019. |
| Treatment of Hyperhidrosis, BlueCross BlueShield Association Medical Policy, 8.01.19; Reviewed Date: 7/2019. |
| Surgical Treatments for Hyperhidrosis, Medical Policy; Med 165. |
| Botox, Dysport, Xeomin, Botulinum toxin type A injection, Medication Policy Manual, Policy No. dru006 |
| Cosmetic and Reconstructive Surgery, Surgery Section; Medical Policy No. 12. |

### Codes

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<tr>
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<td>HCPCS</td>
<td>J0587</td>
<td>Injection, rimabotulinumtoxinB, 100 units</td>
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### References

1. Lew, MF. Duration of effectiveness of botulinum toxin type B in the treatment of cervical
dystonia. Advances in neurology. 2004;94:211-5. PMID: 14509675
10534248


23. Trosch, RM, Adler, CH, Pappert, EJ. Botulinum toxin type B (Myobloc) in subjects with hemifacial spasm: results from an open-label, dose-escalation safety study. Mov Disord. 2007 Jul 15;22(9):1258-64. PMID: 17588242


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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<tbody>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>1/31/2019</td>
<td>No coverage criteria changes with this annual update. Clarified documentation language (No change to intent)</td>
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<tr>
<td>1/19/2018</td>
<td>No coverage criteria changes with this annual update</td>
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<tr>
<td>2/17/2017</td>
<td>Clarify quantity limits to 4 doses per 48-weeks (versus use of 12 months). Clarify authorization “may” be reviewed every 12 months.</td>
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<tr>
<td>2/12/2016</td>
<td>No criteria changes</td>
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<td>12/14/2001</td>
<td>New policy.</td>
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**Medication Policy Manual**  
**Policy No:** dru135  
**Topic:** Compounded Medications  
**Date of Origin:** July 28, 2006  
**Committee Approval Date:** October 28, 2020  
**Next Review Date:** October 2021  
**Effective Date:** January 1, 2021

**IMPORTANT REMINDER**
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**
The FDA defines drug compounding as the process by which a pharmacist or doctor combines, mixes, or alters ingredients to create a medication tailored to an individual patient's needs.

In order to be covered, a compounded prescription medication must contain at least one federal legend drug in therapeutic amounts. A federal legend drug is defined as a medication product that by Federal law bears the statement “Caution – Federal (U.S.A.) law prohibits dispensing without a prescription” or words of similar meaning (such as “Rx only”). Bulk chemicals, medical food supplements and nutritional additives not approved for dispensing by prescription are not considered federal legend drugs. The policy below defines criteria that must be met in order for compounded prescriptions to be covered.

**NOTE:** If a compounded medication contains only ingredients that are excluded under the member’s benefit (including, but not limited to, bulk chemicals and OTC products), it will be excluded from coverage regardless of the criteria below.
Policy/Criteria

I. Continuation of therapy (COT): Compounded medications may be considered medically necessary for COT when criteria A., B., and C. below are met.

   A. The patient is established on this therapy AND one of the following situations apply (criteria 1. or 2. below):
      1. Prior to current health plan membership AND the medication was covered by another health plan.
      OR
      2. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.

   AND

   B. The active ingredient in the compounded prescription medication contains at least one federal legend drug component.

   AND

   C. If a compounded prescription medication is similar to a commercially available product, but differs from the commercially available product in dosage, dosage form, and/or omission of dye, sweetener, flavoring, or preservative, then clinical documentation is required from the prescriber supporting the clinical need for compounded medication.

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. A compounded prescription medication may be considered medically necessary when the following criteria are met:

   A. The active ingredient in the compounded prescription medication contains at least one federal legend drug component.

   AND

   B. The active ingredient is present in therapeutic amounts, based on scientific literature or national compendia.

   AND

   C. The safety and effectiveness for the compounded medication and its route of administration (including the delivery system) is supported by scientific literature or national compendia.

   AND

   D. If a compounded prescription medication is similar to a commercially available product, but differs from the commercially available product in dosage, dosage form, and/or omission of dye, sweetener, flavoring, or preservative, then clinical documentation is required from the prescriber supporting the clinical need for the compounded medication.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
AND

E. If the active ingredient requires medical necessity review, i.e. pre-authorization (PA), medical necessity criteria have been met.

III. Authorization may be reviewed annually to confirm that current medical necessity criteria are met and that the medication is effective.

IV. Drug compounding for the sole purpose of convenience is considered not medically necessary.

Position Statement

Summary

- The FDA recognizes the ability of pharmacists or physicians to engage in traditional extemporaneous drug compounding of reasonable quantities of drugs in response to receipt of a valid prescription. [1]

- Drug compounding may be required to fit the medical needs of a patient because a medication is not commercially available in the necessary strength or dosage form. Drug compounding may also be required for:
  - Preparation of a medication that has been withdrawn from the market for economic concerns, NOT safety.
  - Patients who require liquid formulations or rectal suppositories due to difficulty or inability to swallow.
  - Allergies to dyes, preservatives, or fillers in commercial products which require allergy-free medications.

- When the sole purpose of drug compounding is for the sake of convenience to the physician, other health care provider, and/or the patient, the compounded drug is not considered medically necessary.

Federal and State Regulation

- The FDA provides rules and guidance to assure compounding activities performed by pharmacies and/or physician offices are maintained within the realm of traditional pharmacy practice and that activities are not those that would be considered manufacturing and distributing of an unapproved new drug. [1,2]

- The FDA receives guidance from the Pharmacy Compounding Advisory Committee (PCAC), which was established to advise the FDA on scientific, technical, and medical issues related to drug compounding. The FDA will also consult with the PCAC before issuing certain regulations. [2,3]

- Regulation of compounding is generally done at the state level. States may vary in their regulation and definitions of compounding. The FDA has oversight when compounding is considered manufacturing.
Compounded Pellets (implants) – such as naltrexone or testosterone

- There is significant interest in the use of various medications given as pellets (or implants). Commercially available implants include, but are not limited to: [4]
  * Testosterone pellet (available commercially as Testopel 75 mg)
  * Buprenorphine implant (available commercially as Probuphine)
  * Various contraceptive implants

- However, the use of compounded pellets (or implants) are not coverable, per the coverage criteria. The rationale is as follows:
  * Most compounded pellets (or implants) are made with a bulk powder or chemical and do NOT contain a “federal legend drug,” as defined in the coverage criteria. Any compound that does not contain a federal legend drug is contractually excluded from coverage.
  * In addition, like many other compounds, there is insufficient evidence to establish the safety or efficacy of compounded pellets (or implants), the pellet dosage form, nor the amount of active ingredient in the pellet (including its pharmacokinetics).

- Naltrexone subcutaneous (SC) implant:
  * Naltrexone is available as FDA-approved long-acting injectable suspension (Vivitrol), as well as orally as a 50 mg scored tablet. [4]
  * The safety and efficacy of the compounded product (naltrexone SC implant pellet), the pellet dosage form, nor the amount of naltrexone in this dosage form (including its pharmacokinetics) is not well established. While it may be similar to other compounded products studied, consistent dose and release profiles are not supported by the current literature.

- Testosterone compounded pellet:
  * Testosterone is available as an FDA-approved long-acting pellet (Testopel, as 75 mg pellets), as well as several other topical, injectable, and oral dosage forms. [4]
  * The safety and efficacy of compounded testosterone products (including testosterone pellet other than Testopel and any strength other than 75 mg), the pellet dosage form, nor the amount of testosterone in this dosage form (including its pharmacokinetics) is not well established. In addition, consideration of coverage for any testosterone would require review versus coverage criteria in the Testosterone replacement therapy products medication policy. [5]

### Cross References

| Extended-release (ER) Opioid Medication Products for Pain, Medication Policy Manual, Policy No. 515 |
| Immediate-release (IR) Opioid Medication Products for Pain, Medication Policy Manual, Policy No. 516 |
| Testosterone replacement therapy products (including Testopel), Medication Policy Manual, Policy No. 548 |
References
5. Regence Medication Policy. Testosterone replacement therapy products (including Testopel), Medication Policy Manual, Policy No. 548

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
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<tr>
<td>10/28/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<tr>
<td>7/24/2019</td>
<td>Added that compounds made for the purpose of convenience is considered not medically necessary.</td>
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<tr>
<td>03/08/2019</td>
<td>Added clarification of compounded implants and pellets, including naltrexone and hormones (such as testosterone, estradiol, etc).</td>
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<tr>
<td>10/04/2018</td>
<td>Added clarification of excluded coverage for compounds containing only excluded products such as bulk chemicals and OTC drugs.</td>
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<tr>
<td>08/17/2018</td>
<td>Added criterion to clarify that if the active ingredient requires pre-authorization, then medical necessity criteria for that medication must also be met.</td>
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<td>08/11/2017</td>
<td>No changes to coverage criteria with this annual update.</td>
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<td>03/10/2017</td>
<td>No changes to coverage criteria with this annual update.</td>
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**Medication Policy Manual**

**Topic:** Arzerra, ofatumumab

**Committee Approval Date:** July 16, 2021

**Effective Date:** October 1, 2021

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**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Ofatumumab (Arzerra) is a B-cell-directed monoclonal antibody used in the treatment of lymphocytic leukemia (CLL). It is given via intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of ofatumumab (Arzerra) prior to coverage.

I. Continuation of therapy (COT): Ofatumumab (Arzerra) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Ofatumumab (Arzerra) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

A. Diagnosis of relapsed or refractory chronic lymphocytic leukemia (CLL).

AND

B. Clinical documentation (including, but not limited to chart notes) confirming that at least two prior therapies for CLL have been ineffective.
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy services does not consider ofatumumab (Arzerra) to be a self-administered medication.
   B. When preauthorization is approved, ofatumumab (Arzerra) will be authorized for a single treatment course of up to 12 infusions in a 12-month period. No additional treatment courses will be authorized beyond 12 infusions.

IV. Ofatumumab (Arzerra) is considered not medically necessary for the following conditions:
   A. Rheumatoid arthritis (RA).
   B. Previously untreated CLL.

V. Use of ofatumumab (Arzerra) beyond a total of 12 infusions is considered investigational. Additionally, ofatumumab (Arzerra) is considered investigational when used for all other conditions, including but not limited to:
   A. Non-Hodgkin’s follicular lymphoma.
   B. Maintenance therapy in CLL.
   C. Mucosa-associated lymphoid tissue (MALT) lymphoma.
   D. Relapsing-remitting multiple sclerosis (RRMS).

Position Statement
- Ofatumumab (Arzerra) is a monoclonal antibody that is directed against B-lymphocytes. It results in depletion of B-cells by binding to CD20 molecules expressed on the B lymphocytes. Rituximab and obinutuzumab (Gazyva) are also CD20-directed therapies.
- Ofatumumab (Arzerra) is approved for the treatment of chronic lymphocytic leukemia (CLL) when first-line therapies, specifically fludarabine and alemtuzumab, were not effective; as a first-line therapy when given with chlorambucil for patients who are not candidates for fludarabine-based chemotherapy; for relapsed CLL when given with fludarabine and cyclophosphamide; or for maintenance therapy in patients who are in complete or partial response after at least two lines of therapy for recurrent or progressive CLL. (Note: Alemtuzumab is no longer commercially available; however, it is available through the manufacturer at no cost when used for cancer treatment).
- The intent of this policy is to cover ofatumumab (Arzerra) for relapsed or refractory CLL after at least two prior CLL therapies have been ineffective.
- The efficacy of ofatumumab (Arzerra) is based on surrogate endpoints such as tumor response and progression-free survival (PFS). To date, there is no evidence of improved clinical outcomes such as improved survival, quality of life, or symptom control.
- Ofatumumab (Arzerra) has not been directly compared with rituximab or obinutuzumab (Gazyva), two other CD20-directed therapies used in the treatment of CLL. Ofatumumab (Arzerra) has the potential to be the most costly option among these similar treatment options.

- A recent study reported improved PFS with ibrutinib (Imbruvica) relative to ofatumumab (Arzerra) when administered to patients with CLL who had received prior therapy for their disease. The trial was stopped early due to these positive findings for ibrutinib (Imbruvica). Overall survival data from the trial is not mature.

- Although the National Comprehensive Cancer Network (NCCN) Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma guideline lists ofatumumab (Arzerra) as one of many category 2A options in the relapsed or refractory CLL setting, there are several preferred therapies in each of these settings with higher level recommendations (category 1).

- A recent study evaluated ofatumumab (Arzerra) in patients with rheumatoid arthritis who had an inadequate response to methotrexate. There are many other medications with longer track records of safety and effectiveness that provide a better value in this population.

- Ofatumumab (Arzerra) is being studied in other conditions where B-cells may play a role in the disease process. Studies evaluating the possible benefit in these other conditions, which includes follicular lymphoma and multiple sclerosis, are currently ongoing.

- Ofatumumab (Arzerra) is administered via intravenous infusion for a total of 12 infusions. There is not sufficient evidence to support use of ofatumumab (Arzerra) beyond a single course of up to 12 infusions.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

OFATUMUMAB (ARZERRA) IN CHRONIC LYMPHOCYTIC LEUKEMIA (CLL)

Ofatumumab (Arzerra) has been studied in chronic lymphocytic leukemia (CLL) in the relapsed setting as a single agent, and in the first-line setting in combination with chlorambucil in patients who are not candidates for cytotoxic chemotherapy. To date, there is no evidence that it improves disease-related symptoms or overall survival. Additionally, there is no evidence that it is superior to any other therapy for CLL in any setting.

Relapsed/refractory CLL

- A small, low-quality, single-arm study evaluated tumor response rate as the primary endpoint in 59 patients with relapsed/refractory CLL. [1 2]
* All patients included in the trial had CLL that was refractory to both fludarabine and alemtuzumab (Campath). The median number of prior therapies was five.

* The investigator-determined overall response rate (combination of partial and complete responders) was 42%. There were no complete responses.

* Eighty-eight percent of patients in the clinical trial received at least 8 of the 12 scheduled doses of ofatumumab (Arzerra), while 54% of subjects received all 12 infusions.

* The evidence from this trial is of low-quality because there was no comparator, the subjects were not blinded or randomized, and the endpoint (tumor response) has not been validated to correlate with clinically relevant outcomes (e.g., overall survival, symptom control, or quality of life).

* Note: Alemtuzumab (Campath) is no longer commercially available because the manufacturer is now marketing it as a new therapy for multiple sclerosis. However, it is available at no charge through the manufacturer when used for the treatment of cancer. Visit http://www.campath.com/ for details on the Campath Distribution Program.

- A large, randomized, open-label trial compared ibrutinib (Imbruvica) with ofatumumab (Arzerra) in previously treated patients with CLL or small lymphocytic lymphoma (SLL), a related condition. [3]

* The trial evaluated patients who had received at least one prior therapy (median of 2 to 3) and were not candidates for treatment with a purine analog (e.g., fludarabine) because they had a short progression-free interval after prior chemotherapy, they were of advanced age (≥ 70 years), had a coexisting illness, or had a chromosome 17p13.1 deletion.

* Patients (N = 391) were randomized in a 1:1 fashion to receive either ibrutinib (Imbruvica) 420 mg orally daily, or a standard course (12 infusions) of ofatumumab (Arzerra). A majority of patients had high-risk features, including del(17p) or del(11p).

* The median duration of progression-free survival was 8.1 months with ofatumumab (Arzerra) and had not yet been reached in the ibrutinib (Imbruvica) arm (median follow up of 9.4 months). This difference was statistically significant.

* Survival at 12 months was 90% and 81% in the ibrutinib (Imbruvica) and ofatumumab (Arzerra) treatment arms, respectively. Median overall survival has not been reached in either group.

* There is low confidence in the comparative evidence from this trial because it was an open-label design and there were differences in baseline characteristics between the two populations [patients in the ibrutinib (Imbruvica) treatment arm were more heavily pretreated and there was a greater proportion of patients with bulky disease in this arm]. Bias due to lack of blinding and poor randomization cannot be ruled out. Additionally, future reports of overall survival will be confounded by crossover from ofatumumab (Arzerra) to ibrutinib (Imbruvica).
The NCCN CLL/SLL guideline lists ofatumumab (Arzerra) as a category 2A recommendation among ‘Other recommended regimens’ when used in the relapsed and refractory CLL/SLL setting. There are several alternative regimens (both category 1 and category 2A recommendations) which are listed as preferred regimens. [4]

**Not Medically Necessary and Investigational Uses**

**Previously untreated CLL**

- A large, randomized, open-label trial evaluated ofatumumab (Arzerra) plus chlorambucil in patients with CLL who had no previous treatment for their disease. [1-5]
  * The trial evaluated patients who were not candidates for fludarabine-based chemotherapy due to advanced age (≥ 70 years) or presence of comorbidities (e.g., coexisting illness, poor renal function).
  * Patients (N=447) were randomized to ofatumumab (Arzerra) plus chlorambucil or chlorambucil alone. Treatment was given in 28-day cycles for up to 12 cycles.
  * Progression-free survival (PFS), the primary endpoint, was 22.4 months and 13.1 months in the ofatumumab (Arzerra) plus chlorambucil and chlorambucil alone arm, respectively.
  * There were inadequate details available to assess the quality of evidence in this trial; however, the lack of blinding is considered a major flaw.

- The efficacy of ofatumumab (Arzerra) has not been studied beyond a single treatment course which consists of 12 infusions. [1-3]

- Ofatumumab (Arzerra) has not been directly compared with rituximab or obinutuzumab (Gazyva), two additional CD20-directed therapies used in the treatment of CLL.

- The National Comprehensive Cancer Network (NCCN) Chronic Lymphocytic Leukemia/Small Lymphocytic Lymphoma guideline does not recommend ofatumumab (Arzerra) as first-line therapy for CLL in patients with or without a del(17p)/TP53 mutation. [4]

**Maintenance therapy for CLL**

- A low-quality, open-label, multicenter, Phase III trial compared ofatumumab (Arzerra) maintenance therapy (1000 mg every 8 weeks for up to 2 years) with observation for patients in remission after reinduction for relapsed CLL. Treatment continued until disease progression or the patient withdrew from the study. [6]
  * At the planned interim analysis, PFS was significantly improved in the ofatumumab (Arzerra) arm (29.4 months) compared to the observation arm (15.2 months).
  * However, there was no significant difference between the treatment arms in OS (HR=0.85; 95% CI, 0.52 to 1.37; p=0.49).
  * No clinically relevant differences in HRQOL were observed.

- The NCCN CLL/SLL guidelines gives ofatumumab (Arzerra) a lower than standard recommendation (category 2B) for CLL maintenance therapy. [4]
Other conditions

- Ofatumumab (Arzerra), an anti-CD20 antibody, has been studied in several other B-cell-mediated conditions.

  * **Follicular lymphoma**: Several trials have evaluated ofatumumab (Arzerra) in follicular lymphoma. To date, none of the trials have evaluated a clinical endpoint or compared ofatumumab (Arzerra) to either placebo or any established therapy. Additional studies are needed to establish the safety and effectiveness of ofatumumab (Arzerra) in this condition.

  * **Mucosa-associated lymphoid tissue (MALT) lymphoma**: A preliminary trial in 16 patients suggests that ofatumumab (Arzerra) may have activity in this disease based on objective tumor response rates. A larger, well-designed study is needed to establish safety and effectiveness in this condition. [10]

  * **Rheumatoid arthritis**: One small phase I/II trial and a larger phase III trial evaluated ofatumumab (Arzerra) in patients with rheumatoid arthritis. The larger of the two trials compared ofatumumab (Arzerra) with placebo in patients who had an inadequate response to methotrexate. There are many established treatment options with long track records of safety and effectiveness that provide a better value in this population.

  * **Relapsing-remitting multiple sclerosis (RRMS)**: A small, published, phase II, dose-finding, cross-over trial evaluated MRI lesions and B-cell counts in patients receiving ofatumumab (Arzerra) for RRMS for 24 weeks. Standard trial design to establish safety and efficacy of medications in RRMS includes evaluation of MS attack rate in hundreds of patients over a minimum of 2 years. Larger, well-controlled trials evaluating a clinical endpoint are needed to establish ofatumumab (Arzerra) as a safe and effective therapy for RRMS. [13]

  * **Waldenström’s macroglobulinemia (WM)**: There is interest in using ofatumumab (Arzerra) in WM by virtue of its mechanism of action which is similar to other therapies used in the treatment of this condition; however, to date, no clinical trials have been published to support this use.

- The NCCN compendium lists ofatumumab (Arzerra) among many category 2A recommendations for Waldenström’s macroglobulinemia. Its use is recommended only in rituximab-intolerant individuals. [14] No clinical trials were identified that evaluated ofatumumab (Arzerra) in this condition.

**Safety [1]**

- Infections, neutropenia, and fever are the most common serious adverse reactions observed with ofatumumab (Arzerra).

- Ofatumumab (Arzerra) may cause serious infusion reactions leading to symptoms that include bronchospasm, dyspnea, laryngeal edema, cardiac infarction, and angioedema. Premedication with intravenous corticosteroids, an oral analgesic, and oral or intravenous antihistamine are recommended before infusing.

- Ofatumumab (Arzerra) has a boxed warning to highlight the potential risk of progressive multifocal leukoencephalopathy (PML) and reactivation of hepatitis B.
**Dosing**[1]

- Relapsed CLL: Ofatumumab (Arzerra) is administered for up to 6 cycles as follows:
  * 300 mg on Day 1, followed by 1,000 mg on Day 8 (Cycle 1)
  * 1,000 mg on Day 1 of subsequent 28-day cycles for a maximum of 6 cycles.

- Refractory CLL: Ofatumumab (Arzerra) is administered in 12 doses as follows:
  * An initial dose of 300 mg (Dose 1), followed one week later by
  * 2,000 mg weekly for 7 doses (Doses 2 through 8), followed 4 weeks later by
  * 2,000 mg every four weeks for 4 doses (Doses 9 through 12).

- Premedicate before each dose with acetaminophen, an oral or intravenous antihistamine, and an intravenous corticosteroid (prednisolone 100 mg or equivalent).

- The safety and effectiveness of ofatumumab (Arzerra) have only been formally evaluated based on the administration of a single, 12-dose course of therapy. Although there is a published case series of a small subset of subjects from the pivotal trial who went on to receive a second course of ofatumumab (Arzerra) when their CLL progressed after an initial 12-dose course, this low-level evidence is not sufficient to support the benefit of this practice versus changing to an alternative therapy.[15]

### Appendix 1: CD20-Directed Therapies for Chronic Lymphocytic Leukemia (CLL)

<table>
<thead>
<tr>
<th>Therapies</th>
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<tbody>
<tr>
<td>Obinutuzumab (Gazyva)</td>
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<tr>
<td>Ofatumumab (Arzerra)</td>
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<td>Rituximab</td>
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### Cross References

- Copiktra, duvelisib, Medication Policy Manual, Policy No. dru573
- Gazyva, obinutuzumab, Medication Policy Manual, Policy No. dru327
- Imbruvica, ibrutinib, Medication Policy Manual, Policy No. dru326
- Non-Preferred Products with Therapeutically Interchangeable Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620
- Venclexta, venetoclax, Medication Policy Manual, Policy No. dru462
- Zydelig, idelalisib, Medication Policy Manual, Policy No. dru363
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<td>HCPCS</td>
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<td>Injection, ofatumumab (Arzerra), 10 mg</td>
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**References**


Revision History

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<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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<tr>
<td>06/15/2020</td>
<td>Removed references to brand Rituxan from policy, to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>4/25/2019</td>
<td>Mucosa-associated lymphoid tissue (MALT) lymphoma was added to the list of investigational conditions.</td>
</tr>
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<td>3/19/2018</td>
<td>No changes to coverage criteria with this annual update.</td>
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<tr>
<td>1/13/2017</td>
<td>Revised coverage criteria to specify relapsed or refractory CLL. Added maintenance therapy as an investigational use.</td>
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<tr>
<td>1/8/2016</td>
<td>No changes with this annual update.</td>
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<tr>
<td>1/15/2010</td>
<td>New policy</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual  
Policy No: dru197  
Topic: Folotyn, pralatrexate  
Date of Origin: January 15, 2010  
Committee Approval Date: July 16, 2021  
Next Review Date: April 2022  
Effective Date: October 1, 2021

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Pralatrexate (Folotyn), an analogue of methotrexate, is a chemotherapy medication used in the treatment of a rare form of cancer (peripheral T-cell lymphoma). It is administered via an intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of pralatrexate (Folotyn) prior to coverage.

I. **Continuation of therapy (COT):** Pralatrexate (Folotyn) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Pralatrexate (Folotyn) may be considered medically when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A and B below are met.

   A. A diagnosis of **peripheral T-Cell lymphoma** (PTCL).

   AND

   B. At least one prior therapy for PTCL has been ineffective or not tolerated (see Appendix 1).
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services does not consider pralatrexate (Folotyn) to be a self-administered medication.
   B. When pre-authorization is approved, pralatrexate (Folotyn) will be authorized for up to four infusions every four weeks until disease progression.
   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Pralatrexate (Folotyn) is considered investigational when used for all other conditions, including but not limited to:
   A. Cutaneous T Cell Lymphoma (CTCL).
   B. Hodgkin Lymphoma.
   C. Malignant Pleural Mesothelioma.
   D. Non-Hodgkin Lymphomas.
   E. Non-Small Cell Lung Cancer (NSCLC).
   F. Ovarian, Fallopian Tube, or Primary Peritoneal Cancer.

Position Statement
- Pralatrexate (Folotyn), a methotrexate analog, is used in the treatment of peripheral T-cell lymphoma (PTCL), including the various subtypes of PTCL (see Appendix 1). Its efficacy in this condition is based on tumor response assessments. Clinical benefit, such as improvement in survival, has not been demonstrated.
- The intent of this policy is to cover pralatrexate (Folotyn) for the indication and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- Pralatrexate (Folotyn) was studied in patients who had at least one prior medication therapy for their PTCL.
- National Comprehensive Cancer Network (NCCN) guidelines list many options for the treatment of PTCL, including pralatrexate (Folotyn). There are no studies comparing pralatrexate (Folotyn) with any of these other options.
- Pralatrexate (Folotyn) is administered as an intravenous push once weekly for 6 weeks in 7-week cycles. Supplementation of vitamin B12 and folic acid is given with pralatrexate (Folotyn) to minimize hematologic toxicity.
- Pralatrexate (Folotyn) is being studied in a variety of other cancers; however, there is insufficient evidence supporting its safety and efficacy in these other conditions at this time.
Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The efficacy of pralatrexate (Folotyn) is based on a single, unreliable study that used response criteria as its primary outcome. [1]
  * The single-arm trial studied 111 patients with relapsed or refractory PTCL.
  * Efficacy was based on the overall response rates defined as the sum of the complete response rate, unconfirmed complete response rate, and partial response rate.
  * The median number of prior systemic therapies was 3 (range 1 to 12).

- Pralatrexate (Folotyn) has not been shown to improve clinical outcomes such as progression-free survival or overall survival.

- Pralatrexate (Folotyn) has not been compared with any other therapy for PTCL. [2]

- National Comprehensive Cancer Network (NCCN) T-cell lymphomas guideline lists several potential options for the treatment of PTCL (see Appendix 1), including pralatrexate (Folotyn). [3] All of these options are listed as NCCN category 2A recommendations meaning the quality of evidence is low but there was consensus among oncologists on the panel for inclusion on the guideline.

- Pralatrexate (Folotyn) is being studied in the treatment of several additional conditions including other types of non-Hodgkin’s lymphomas, non-small cell lung cancer (NSCLC) and mesothelioma. There is also interest in using pralatrexate (Folotyn) as a front-line therapy for patients with PTCL.
  * Results from most of the non-Hodgkin’s lymphoma studies (other than PTCL) have not been reported in peer-reviewed literature. [4]
  * In a small, published trial pralatrexate (Folotyn) demonstrated some activity in patients with NSCLC based on objective response rates. [5] A second, published trial comparing pralatrexate (Folotyn) and erlotinib (Tarceva) used overall survival as a primary endpoint. No statistical difference was reported; however, the trial was not adequately powered to detect a difference between interventions so results are not meaningful. [6] Larger, well-controlled studies are needed to establish the safety and efficacy of pralatrexate (Folotyn) in NSCLC.
  * A single small trial failed to demonstrate any benefit from single-agent pralatrexate (Folotyn) in patients with malignant pleural mesothelioma. [7]
  * When used as a front-line therapy, the addition of pralatrexate (Folotyn) to conventional chemotherapy (i.e., cyclophosphamide, doxorubicin, vincristine, prednisone), did not improve outcomes compared to historical data using chemotherapy alone. [8]
* Small, preliminary studies evaluated tumor response in patients (N = 49) who were given carboplatin plus pralatrexate (Folotyn) for recurrent, platinum-sensitive ovarian, fallopian tube, or primary peritoneal cancer. Controlled trials are needed to establish clinical benefit in this population. [9]

Safety [2]

- The most common adverse effects reported with pralatrexate (Folotyn) include mucositis, thrombocytopenia, nausea, and fatigue.
- Folate and vitamin B₁₂ supplementation are recommended to reduce treatment-related hematologic toxicity and mucositis.
- Dose modifications are recommended for severe mucositis, neutropenia and thrombocytopenia, and liver enzyme elevations.
- Other medications that are primarily eliminated by the kidneys (e.g., trimethoprim/sulfa, NSAIDs) may interfere with pralatrexate secretion, thereby delaying its clearance.

Dosing Considerations [2]

- Pralatrexate (Folotyn) is given as an intravenous push over 3 to 5 minutes at a dose of 30 mg/m².
- It is given once weekly for 6 weeks in 7-week cycles until disease progression or unacceptable toxicity.
# Appendix 1: Systemic Treatment Options for PTCL

## First-line Therapy

* PTCL subtypes included: PTCL not otherwise specified (NOS), angioimmunoblastic T-cell lymphoma (AITL), anaplastic large cell lymphoma (ALCL), and enteropathy-associated T-cell lymphoma (EATL)

###优选方案
- Brentuximab vedotin + CHP (cyclophosphamide, doxorubicin, prednisone) for CD30+ histologies\(^a\)
- CHOEP (cyclophosphamide, doxorubicin, vincristine, etoposide, prednisone)
- CHOP (cyclophosphamide, doxorubicin, vincristine, etoposide, prednisone)
- CHOP followed by IVE (ifosfamide, etoposide, epirubicin) alternating with methotrexate
- EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin)

### Second-line Therapy

<table>
<thead>
<tr>
<th>Transplant candidates</th>
<th>Non-transplant candidates</th>
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<tr>
<td><strong>Preferred single agents:</strong></td>
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<tr>
<td>- Belinostat (Beleodaq)</td>
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<tr>
<td>- Brentuximab vedotin (Adcetris) for CD30+ PTCL</td>
<td></td>
</tr>
<tr>
<td>- Pralatrexate (Folotyn)</td>
<td></td>
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<tr>
<td>- Romidepsin (Istodax)</td>
<td></td>
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<tr>
<td><strong>Preferred combination regimens:</strong></td>
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<tr>
<td>- DHAP (dexamethasone, cisplatin, cytarabine)</td>
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<tr>
<td>- DHAX (dexamethasone, oxaliplatin, cytarabine)</td>
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<tr>
<td>- ESHAP (etoposide, methylprednisolone, cytarabine, cisplatin)</td>
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<tr>
<td>- GDP (gemcitabine, dexamethasone, cisplatin)</td>
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<tr>
<td>- GemOx (gemcitabine, oxaliplatin)</td>
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<tr>
<td>- ICE (ifosfamide, carboplatin, etoposide)</td>
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<tr>
<td><strong>Other recommended single agents/regimens:</strong></td>
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<tr>
<td>- Bendamustine</td>
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<td>- Gemcitabine</td>
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<tr>
<td>- Lenalidomide (Revlimid)</td>
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<td>- GVD (gemcitabine, vinorelbine, liposomal doxorubicin (Doxil))</td>
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<tr>
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<tr>
<td>- Romidepsin (Istodax)</td>
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<tr>
<td><strong>Other recommended single agents:</strong></td>
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<td>- Alemtuzumab (Campath)</td>
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<tr>
<td>- Bendamustine</td>
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<tr>
<td>- Cyclophosphamide and/or etoposide (IV or PO)</td>
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<tr>
<td>- Gemcitabine</td>
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<tr>
<td>- Lenalidomide (Revlimid)</td>
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<tr>
<td>- Radiation therapy</td>
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\(^a\) All therapies listed above are NCCN category 2A recommendations (lower quality evidence but uniform consensus among panel) unless otherwise indicated.
\(^b\) AITL and ALCL have slight variations in the regimens used in the second line and subsequent therapy setting
### Codes

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<td>HCPCS</td>
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### References


**Revision History**

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<td>7/16/2021</td>
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<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<td>4/25/2019</td>
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| 7/20/2018     | • Added ovarian, fallopian tube, and primary peritoneal cancer under ‘investigational’ conditions.  
• Clarify quantity limit (up to four infusions every four weeks until disease progression).  
• Updated other criteria with standard policy language (no change to intent). |
| 7/14/2017     | No criteria changes with this annual update. |
| 9/9/2016      | No criteria changes with this annual update. |
| 1/15/2010     | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER

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The purpose of Medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Romidepsin (Istodax), a histone deacetylase (HDAC) inhibitor, is a cancer medication used in the treatment of certain T-cell lymphomas. It is given via intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of romidepsin (Istodax) prior to coverage.

I. Continuation of therapy (COT): Romidepsin (Istodax) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Romidepsin (Istodax) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criterion A or B below is met.

A. A diagnosis of peripheral T-cell lymphoma (PTCL) when at least two prior systemic therapies have been ineffective or not tolerated (see Appendix 1 for therapy options).

OR

B. A diagnosis of cutaneous T-cell lymphoma (CTCL) [e.g. Mycosis Fungoides and Sézary Syndrome] when at least two prior systemic therapies have been ineffective or not tolerated (see Appendix 2 for therapy options).
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services does not consider romidepsin (Istodax) to be a self-administered medication.
   B. When pre-authorization is approved, romidepsin (Istodax) will be authorized for up to three infusions every four weeks until disease progression.
   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Romidepsin (Istodax) is considered investigational when used in patients who have had prior treatment with belinostat (Beleodaq) and when used in combination with other chemotherapy medications.

V. Romidepsin (Istodax) is considered investigational when used for all other conditions, including but not limited to:
   A. Prostate cancer.
   B. Squamous cell cancer of the head and neck (SCCHN).
   C. Solid tumors.

Position Statement
- Romidepsin (Istodax), a histone deacetylase (HDAC) inhibitor, is among several systemic medications (see Appendices 1 and 2) that may be used to treat cutaneous T-cell lymphoma (CTCL) [e.g. Mycosis Fungoides (MF), Sézary Syndrome (SS)] and peripheral T-cell lymphoma (PTCL).
- The intent of this policy is to cover romidepsin (Istodax) for the indications and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- The effectiveness of romidepsin (Istodax) is based on low-quality, single-arm studies that evaluated tumor response rates, a surrogate marker, as the primary endpoint.
- The effect of these therapies on overall survival has not been evaluated.
- Romidepsin (Istodax) has not been studied in the first-line setting nor has it been compared to any other therapy options.
- Romidepsin (Istodax) is administered via intravenous infusion over 4 hours and is given until disease progression or unacceptable toxicity.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.


Clinical Efficacy

Cutaneous T-cell Lymphoma (CTCL)

- The effectiveness of romidepsin (Istodax) has been evaluated in 167 subjects with cutaneous T-cell lymphoma (CTCL) in two, uncontrolled clinical trials with poor quality evidence. [1-3]
  * There was no comparator in either of the studies.
  * The studies evaluated a subgroup of subjects with CTCL for overall response (partial response plus complete response) to therapy.
  * Approximately 34% of subjects had either a partial response (28%) or a complete response (6%).

- All subjects evaluated in the studies had been on one or more prior systemic therapies.
- There is currently no evidence that romidepsin (Istodax) improves clinical outcomes (e.g. overall survival, quality of life) in patients with CTCL.

Peripheral T-cell Lymphoma (PTCL)

- Romidepsin (Istodax) was evaluated in 130 patients with PTCL who had failed at least one prior therapy. The evidence is of poor quality as the trial was not controlled. [4] A second trial in a mixed group of patients with PTCL or CTCL was used as supportive information. [5]
  * Romidepsin (Istodax) was not compared with placebo or an active comparator in either study.
  * The primary endpoint evaluated was disease response rate which is based on disease markers. Clinical outcomes, such as survival, have not been evaluated.
  * The overall response rate (complete response rate plus partial response rate) was 25% with 15% of patients achieving a complete response. [4]

- All subjects evaluated in the studies had been on one or more prior systemic therapies. [4,5]
- There is currently no evidence that romidepsin (Istodax) improves clinical outcomes (e.g. overall survival, quality of life) in patients with PTCL.

National Guidelines

- The National Comprehensive Cancer Network (NCCN) T-cell lymphomas and Primary Cutaneous Lymphomas guidelines lists romidepsin (Istodax) among several recommended systemic treatment options for the treatment of both CTCL and PTCL. [6,7] [refer to Appendix 1 and Appendix 2].

Use in Other Conditions

- Romidepsin (Istodax) is being evaluated for use in several other conditions:
  * Preliminary studies failed to demonstrate a benefit in advanced colorectal cancer, metastatic renal cell carcinoma, prostate cancer, and lung cancer. [8-12]
  * A phase 2 study evaluated the combination of romidepsin (Istodax) and gemcitabine in patients with relapsed or refractory PTCL. There was no additional benefit shown over the use of romidepsin (Istodax) alone. [13]
  * In small number of patients with relapsed multiple myeloma, poor response rates were achieved. [14]
No results are available for studies in several other conditions including squamous cell cancer of the head and neck (SCCHN), breast cancer, solid tumors, and acute myelogenous leukemia. [15]

Safety [1]
- The most common adverse experiences reported with romidepsin (Istodax) include: nausea, fatigue, infections, vomiting, anorexia, bone marrow depression, low serum magnesium, diarrhea, fever, and hypotension.
- Prolongation of the QT interval and increased risk of serious infections have been reported with romidepsin.
- There is the potential for clinically significant drug-drug interactions when romidepsin (Istodax) is co-administered with strong CYP 3A4 inhibitors (e.g. ketoconazole, clarithromycin) and inducers (e.g. rifampin), as well as with drugs that inhibit the P-glycoprotein pathway (e.g. cyclosporine).
- Caution is urged when co-administering romidepsin (Istodax) with warfarin, as elevations in INR may occur.

Dosing considerations [1]
- Romidepsin (Istodax) is administered intravenously on days 1, 8, and 15 of every 28-day cycle until disease progression or unacceptable toxicity. [1]
- Dose adjustment may be necessary for hematologic as well as nonhematologic toxicities. [1]
Appendix 1: Systemic Treatment Options for PTCL [6] a,b,c

**First-line Therapy**

- Brentuximab vedotin + CHP (cyclophosphamide, doxorubicin, prednisone) for CD30+ histologies
- CHOEP (cyclophosphamide, doxorubicin, vincristine, etoposide, prednisone)
- CHOP (cyclophosphamide, doxorubicin, vincristine, prednisone)
- CHOP followed by IVE (ifosfamide, etoposide, epirubicin) alternating with methotrexate
- EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin)

**Second-line Therapy**

<table>
<thead>
<tr>
<th>Transplant candidates</th>
<th>Non-transplant candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preferred single agents:</strong></td>
<td><strong>Preferred Single agents:</strong></td>
</tr>
<tr>
<td>o Belinostat (Beleodaq)</td>
<td>o Belinostat (Beleodaq)</td>
</tr>
<tr>
<td>o Brentuximab vedotin (Adcetris) for CD30+ PTCL</td>
<td>o Brentuximab vedotin (Adcetris) for CD30+ PTCL</td>
</tr>
<tr>
<td>o Pralatrexate (Folotyn)</td>
<td>o Pralatrexate (Folotyn)</td>
</tr>
<tr>
<td>o Romidepsin (Istodax)</td>
<td>o Romidepsin (Istodax)</td>
</tr>
<tr>
<td><strong>Preferred combination regimens:</strong></td>
<td><strong>Other single agents:</strong></td>
</tr>
<tr>
<td>o DHAP (dexamethasone, cisplatin, cytarabine)</td>
<td>o Alemtuzumab (Campath)</td>
</tr>
<tr>
<td>o DHAX (dexamethasone, oxaliplatin, cytarabine)</td>
<td>o Bendamustine</td>
</tr>
<tr>
<td>o ESHAP (etoposide, methylprednisolone, cytarabine, cisplatin)</td>
<td>o Cyclophosphamide and or etoposide (IV or PO)</td>
</tr>
<tr>
<td>o GDP (gemcitabine, dexamethasone, cisplatin)</td>
<td>o Gemcitabine</td>
</tr>
<tr>
<td>o GemOx (gemcitabine, oxaliplatin)</td>
<td>o Lenalidomide (Revlimid)</td>
</tr>
<tr>
<td>o ICE (ifosfamide, carboplatin, etoposide)</td>
<td>o Radiation therapy</td>
</tr>
<tr>
<td><strong>Other recommended therapies:</strong></td>
<td></td>
</tr>
<tr>
<td>o Bendamustine</td>
<td></td>
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<tr>
<td>o Gemcitabine</td>
<td></td>
</tr>
<tr>
<td>o Lenalidomide</td>
<td></td>
</tr>
<tr>
<td>o GVD (gemcitabine, vinorelbine, liposomal doxorubicin)</td>
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</table>

* PTCL subtypes included: PTCL not otherwise specified (NOS), angioimmunoblastic T-cell lymphoma (AITL), anaplastic large cell lymphoma (ALCL), and enteropathy-associated T-cell lymphoma (EATL)
* All therapies listed above are NCCN category 2A recommendations (lower quality evidence but uniform consensus among panel) unless otherwise indicated.
* AITL and ALCL have slight variations in the regimens used in the second line and subsequent therapy setting
# Appendix 2: Systemic Treatment Options* for CTCL (i.e. Mycosis Fungoides/Sezary syndrome) [7]

<table>
<thead>
<tr>
<th>Drug</th>
<th>Description</th>
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<tbody>
<tr>
<td>acitretin (Soriatane)</td>
<td>interferon gamma (Actimmune)</td>
</tr>
<tr>
<td>alemtuzumab (Campath)</td>
<td>isotretinoin</td>
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<tr>
<td>all-trans retinoic acid (Vesanoid)</td>
<td>methotrexate</td>
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<td>bexarotene (Targretin)</td>
<td>mogamulizumab (Poteligeo)</td>
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<td>brentuximab vedotin (Adcetris)</td>
<td>pembrolizumab (Keytruda) [category 2B]</td>
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<tr>
<td>chlorambucil (Leukeran)</td>
<td>pentostatin</td>
</tr>
<tr>
<td>cyclophosphamide</td>
<td>pralatrexate (Folotyn)</td>
</tr>
<tr>
<td>doxorubicin, liposomal (Doxil)</td>
<td>romidepsin (Istodax)</td>
</tr>
<tr>
<td>etoposide</td>
<td>temozolomide (CNS involvement)</td>
</tr>
<tr>
<td>gemcitabine</td>
<td>vorinostat (Zolinza)</td>
</tr>
<tr>
<td>interferon alfa (Intron A)</td>
<td></td>
</tr>
</tbody>
</table>

* All therapies listed above are NCCN category 2A recommendations (lower quality evidence but uniform consensus among panel), unless otherwise noted.

# Cross References

- Adcetris, brentuximab, Medication Policy Manual, Policy No. dru264
- Beleodaq, belinostat, Medication Policy Manual, Policy No. dru362
- Folotyn, pralatrexate, Medication Policy Manual, Policy No. dru197

# Codes

<table>
<thead>
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<th>Codes</th>
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<td></td>
<td>J9315</td>
<td>Injection, romidepsin (Istodax), 1 mg</td>
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# References


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>4/25/2019</td>
<td>No criteria changes with this annual update.</td>
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</table>
| 7/20/2018     | - Clarify quantity limit (up to three infusions every four weeks until disease progression).  
- Updated criteria with standard policy language (no changes to intent). |
| 7/14/2017     | No criteria changes with this annual update. |
| 9/9/2016      | No criteria changes with this annual update. |
| 1/15/2010     | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Sipuleucel-T (Provenge) is indicated for the treatment of asymptomatic or minimally symptomatic metastatic, castration-resistant prostate cancer. It is an immunotherapy derived from a patient’s own immune cells and is designed to stimulate an immune response against the prostate cancer.
Policy/Criteria

Most contracts require pre-authorization approval of sipuleucel-T (Provenge) prior to coverage.

I. Continuation of therapy (COT): Sipuleucel-T (Provenge) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Sipuleucel-T (Provenge) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through F below are met.

A. Diagnosis of metastatic adenocarcinoma of the prostate.

AND

B. Radiographic evidence of metastases beyond the primary tumor, (such as bone and soft tissue) except visceral metastases; specifically, liver, lung or brain metastases. [1]
AND

C. Hormone refractory (also known as castration-resistant, castration-recurrent, or androgen-independent) disease when both criteria 1 and 2 below are met:
   1. Disease progression or metastasis despite removal of testes OR despite treatment with anti-androgen medications such as leuprolide (Lupron) AND
   2. Current testosterone level is < 50 ng/mL.

AND

D. Asymptomatic or minimally symptomatic disease [e.g. no narcotic (opioid) use for prostate cancer-related pain].

AND

E. If cytotoxic chemotherapy [e.g. docetaxel, cabazitaxel (Jevtana)] has been previously administered, it must have been stopped for at least 3 months prior to initiation of leukapheresis for sipuleucel-T (Provenge) therapy.

AND

F. If immunosuppressants such as systemic corticosteroids at doses > 5 mg prednisone or equivalent) and/or radiation have been administered, it must have been stopped for at least 28 days prior to initiation of leukapheresis for sipuleucel-T (Provenge) therapy.

II. Administration, Quantity Limitations, and Authorization Period

A. Pharmacy Services does not consider sipuleucel-T (Provenge) to be a self-administered medication.

B. When pre-authorization is approved, sipuleucel-T (Provenge) may be authorized one-time for a maximum of three infusions, each of which includes harvest and re-infusion of activated leucocytes. When criteria for coverage are met, up to 3 completed infusions (one course of therapy) may be authorized per lifetime.

C. Additional courses of therapy are considered investigational.

III. Sipuleucel-T (Provenge) is considered investigational when used for all other conditions, including but not limited to:

A. Localized (non-metastatic) prostate cancer.

B. Treatment of patients with moderate to severe prostate cancer-related pain that requires treatment with opioid analgesics.

C. Treatment of metastatic prostate cancer when there is metastasis to the liver, lung, or brain with or without additional metastases.

D. Concomitant use with of either chemotherapy or immunosuppressive agents (such as systemic corticosteroids) with the leukapheresis procedure or sipuleucel-T (Provenge).
Position Statement

- Sipuleucel-T (Provenge) may improve overall survival as a first-line therapy in men with metastatic castration-resistant (mCRPC). However, there is uncertainty as to the magnitude of its benefit and its effectiveness relative to docetaxel (Taxotere). [1,2]

- Medical or surgical castration (hormonal intervention) is considered first-line therapy for patients with metastatic prostate cancer. Approximately 15% of patients do not respond to or eventually become refractory to hormonal intervention. [3]

- Docetaxel plus prednisone is considered first-line salvage therapy in patients with mCRPC based on its overall survival advantage over mitoxantrone (Novantrone) plus prednisone, a chemotherapy regimen used for palliative treatment. [3]

- In the sipuleucel-T (Provenge) clinical trials, the population studied had radiologically confirmed mCRPC which was asymptomatic or minimally symptomatic. No data exists for its use in moderately or severely symptomatic patients and it has not been studied in patients with visceral metastases. [1]

- Patients in the clinical trials had castration levels of serum testosterone below 50 ng/mL and a serum PSA of at least 5.0 ng/mL. Disease progression was based on imaging studies or PSA measurements, despite surgical or medical castration. [1,2]

- Pain related to prostate cancer is considered a prognostic factor in metastatic prostate cancer and people with pain tend to have higher tumor burden. [4]

- The use of either chemotherapy or immunosuppressive agents (such as systemic corticosteroids) given at the same time with the leukapheresis procedure for sipuleucel-T (Provenge) has not been studied. Sipuleucel-T (Provenge) is designed to stimulate the immune system so simultaneous use of immunosuppressive agents may alter the effectiveness and/or safety of sipuleucel-T (Provenge). [2,5]

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The evidence for sipuleucel-T (Provenge) in the first-line salvage treatment of mCRPC is unreliable. The magnitude of survival benefit relative to placebo is uncertain. [1,2]

- The efficacy of sipuleucel-T (Provenge) relative to docetaxel, another potential first-line therapy in this setting, has not been studied. [2] There are three studies that compared sipuleucel-T (Provenge) with “placebo” (Note: a large proportion of subjects initially randomized to placebo crossed over to a product similar to sipuleucel-T (Provenge) after progression of disease). [1,6,7]
The evidence from one pivotal published randomized controlled published trial comparing sipuleucel-T (Provenge) with placebo in men with mCRPC disease. At a median follow-up of 34 months, patients who received sipuleucel-T (Provenge) had a statistically significant improvement in overall survival. This trial was appraised as unreliable for reasons that included: [1]

* Unblinding, which was allowed after disease progression was confirmed.
* Crossover to alternative therapies after disease progression was allowed at the discretion of the investigator. (This occurred in a large proportion of subjects).

Both of these flaws may impact the overall survival endpoint. The follow up use of a product similar to sipuleucel-T (Provenge) in the placebo treatment arm has the potential to improve survival in these patients, while follow up use of docetaxel in the sipuleucel-T (Provenge) treatment arm has the potential to improve survival in these patients. This crossover allows for confounding variables and makes it difficult to assess whether the reported overall survival benefit is valid and, if the benefit is real, to quantify the benefit.

The evidence from two smaller published trials comparing sipuleucel-T (Provenge) with placebo in men with mCRPC disease were appraised as not reliable for reasons that included: [6,7]

* Use of time to progression (TTP) of disease as a primary endpoint. TTP does not predict overall survival, a clinically relevant endpoint, in men with mCRPC.
* Crossover to other therapies was allowed after progression of disease.
* Post hoc analysis of overall survival (did not define statistical methods in advance).
* One study was stopped before it met its enrollment goal.

Sipuleucel-T (Provenge) is recognized in the National Comprehensive Cancer Network (NCCN) prostate cancer guidelines as a category 1 recommendation for men with mCRPC with asymptomatic or minimally symptomatic disease with ECOG scores of 0 to 1, and is not recommended for patients with visceral metastases and a life expectancy of less than 6 months. It is also recommended as category 2A in patients who have failed first-line therapy for metastatic disease. [3]

Safety [4]

- The most common adverse reactions include: chills, fatigue, fever, back pain, nausea, joint ache, and headache. There are no published head-to-head clinical trials to support the claim that sipuleucel-T (Provenge) has less toxicity than docetaxel.

- There were more cerebrovascular events (CVEs), including hemorrhagic and ischemic strokes, reported in patients receiving sipuleucel-T (Provenge) than placebo (3.5% vs. 2.6%). The difference was not statistically significant. Nevertheless, the Food and Drug Administration listed it as a safety concern in their review of the safety of this medication.
Cross References

Cellular Immunotherapy for Prostate Cancer, BlueCross BlueShield Association Medical Policy, MPRM 8.01.53, Issue August 2020.

<table>
<thead>
<tr>
<th>Codes</th>
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<tr>
<td>HCPCS</td>
<td>Q2043</td>
<td>Sipuleucel-T, (Provenge), minimum of 50 million autologous cd54+ cells</td>
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<tr>
<td></td>
<td></td>
<td>activated with pap-gm-csf, including leukapheresis and all other preparatory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>procedures, per infusion</td>
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<tr>
<td>CPT code</td>
<td>36511</td>
<td>Therapeutic apheresis; for white cells (leukapheresis procedure).</td>
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<td>NCD</td>
<td>110.22</td>
<td>National Coverage Determination (NCD) for Autologous Cellular Immunotherapy</td>
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References

### Revision History

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<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>1/31/2018</td>
<td>No changes to coverage criteria with this annual update (criteria wording modifications for clarity. No change to intent).</td>
</tr>
<tr>
<td>3/19/2018</td>
<td>No criteria changes with this annual update</td>
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<tr>
<td>1/13/2017</td>
<td>No criteria changes with this annual update</td>
</tr>
<tr>
<td>1/8/2016</td>
<td>Reorganization of criteria, including splitting some individual criteria into two criteria, for clarity and ease of use. The intent of the policy has not changed.</td>
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<tr>
<td>08/11/2010</td>
<td>New policy</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru223

Topic: Prolia, denosumab

Date of Origin: August 11, 2010

Committee Approval Date: October 15, 2021

Next Review Date: December 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Denosumab (Prolia) is a medication used to treat osteoporosis (bone loss). It works by preventing bone resorption (breakdown). Reducing bone resorption leads to a favorable increase in bone mass and reduction in fracture risk.

PLEASE NOTE: Denosumab is also marketed as Xgeva and is used to prevent skeletal complications of bone metastases from solid tumor cancers. In addition, denosumab (Xgeva) is used for the treatment of giant cell tumor of the bone and hypercalcemia of malignancy. There is a separate medication policy for denosumab (Xgeva) for these indications, specifically.
Policy/Criteria

Most contracts require pre-authorization approval of denosumab (Prolia) prior to coverage.

I. Continuation of therapy (COT): Denosumab (Prolia) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New Starts (Treatment-naïve patients): Denosumab (Prolia) may be considered medically necessary when there is clinical documentation (including, but not limited to, chart notes) that criteria A and B below are met.

A. Patient is at high risk for fracture when criteria 1 and 2 are met:

1. Patients at high risk for fracture defined by meeting any one of criterion a through f:

   a. Have a bone mineral density that is 2.5 or more standard deviations below that of a "young normal" adult (T-score at or below −2.5).

   OR

   b. Have osteopenia (T-score between -1 and -2.5) and glucocorticoid use for at least 3 months at a dose of 5 mg per day or greater, of prednisone (or equivalent).

   OR

   c. History of osteoporotic (fragility) fracture.
OR
d. Men receiving androgen deprivation therapy (ADT) for nonmetastatic prostate cancer.

OR
e. Women receiving adjuvant aromatase inhibitor therapy for breast cancer.

OR
f. The probability is ≥ 20% for an occurrence of a major osteoporotic fracture or ≥ 3% for hip fracture, based on the US-adapted WHO algorithm Fracture Risk Assessment Tool (FRAX tool).

AND

B. One of the following criteria (1 or 2) below is met:
1. **Step therapy with lower-cost alternatives** has been ineffective, not tolerated or contraindicated as defined by at least one of the following:
   a. The member has received at least three years of bisphosphonate therapy and remains at high risk for fracture.

OR
b. A bisphosphonate has been ineffective (e.g., a loss of BMD after at least 12 months of treatment or fracture while on treatment).

OR
c. Raloxifene has not been effective after at least a 24-month treatment period based on objective documentation.

OR
d. Bisphosphonates (both oral and IV) are not tolerated due to documented clinical side effects.

OR
e. Bisphosphonates (both oral and IV) are contraindicated based on current medical literature and objective documentation describing the contraindication is provided (including, but not limited to, creatinine clearance of less than 35 ml/min).

PLEASE NOTE: In patients with underlying GI issues, use of oral bisphosphonates may be contraindicated or not tolerated. However, use of an IV bisphosphonate must be trialed for above criterion to be met.

*IV bisphosphonates, such as zoledronic acid (generic Reclast), are available for coverage without pre-authorization.*
OR

2. The patient is at very high risk of fracture, defined as meeting one of the following criteria (a or b) below:
   a. A history of multiple fragility fractures.
   OR
   b. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5) and a history of fragility fracture.

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers denosumab (Prolia) coverable only under the medical benefit (as a provider-administered medication).
   B. When pre-authorization is approved denosumab (Prolia) will be authorized in quantities of two 60 mg injections per year.
   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Denosumab (Prolia) is considered not medically necessary for the prevention of skeletal complications of bone metastases from solid tumor cancers, treatment of giant cell tumor of the bone, and hypercalcemia of malignancy.

V. Denosumab (Prolia) is considered investigational when used for all other conditions, including but not limited to prevention of postmenopausal osteoporosis and use in combination with abaloparatide (Tymlos), teriparatide (Forteo), or romosozumab (Evenity).

Position Statement

Summary

Denosumab (Prolia) is a monoclonal antibody used for the treatment of osteoporosis in men and postmenopausal women at high risk for fracture (e.g., T-score at or below -2.5, osteopenia and glucocorticoid use for > 3 months, probability ≥ 20% for an occurrence of a major osteoporotic fracture or ≥ 3% for hip fracture based on FRAX tool). In addition, it is used to increase bone mass in patients at high risk for fracture as a result of receiving androgen deprivation therapy for prostate cancer or aromatase inhibitor therapy for breast cancer.
Bisphosphonate treatment for prevention of bone loss, regardless of cause, is the standard of care due to the body of evidence supporting efficacy and track record of safety. There are both oral and injectable bisphosphonates available as low-cost generics.

Osteoporosis guidelines consider either oral or injectable bisphosphonates (including alendronate, risedronate, and zoledronic acid), along with denosumab (Prolia), as first-line therapy options for most patients who are candidates for treatment. All of these options have “broad spectrum” anti-fracture activity, with proven efficacy to reduce hip, non-vertebral, and spine fractures. Because raloxifene, a selective estrogen receptor modifier (SERM), has not been shown to reduce hip or non-vertebral fracture, it is considered an alternate to the bisphosphonates and denosumab (Prolia). [1]

American Association of Clinical Endocrinologists (AACE) guidelines recommend that abaloparatide (Tymlos), denosumab (Prolia), romosozumab (Evenity), teriparatide (Forteo, Bonsity), and zoledronate as initial therapy for patients at very high fracture risk. The definition for very high risk differs in in Endocrine Society and AACE guidelines but both include patients with a T-score at or below -2.5 and a history of fracture, or a history of multiple fractures.[1 2]

There is consistent evidence that denosumab (Prolia) is a potent antiresorptive therapy. The effect is consistent across the placebo-controlled trials and comparative, non-inferiority trials. Denosumab (Prolia) has demonstrated the potential to decrease the risk of fractures in patients with osteoporosis to a similar degree as other established treatment options (e.g., bisphosphonates); however, it is unknown if denosumab (Prolia) is a superior treatment option.

Comparative evidence evaluating denosumab (Prolia) and bisphosphonates for osteoporosis assessed bone mineral density (BMD) as the primary endpoint, which is not as clinically relevant as the ability to prevent fracture.

There is no comparative evidence evaluating denosumab (Prolia) and bisphosphonates for the prevention of osteoporosis associated with hormone suppression treatment in breast or prostate cancer.

Generic treatments, such as bisphosphonates (oral and injectable), provide the best value for the prevention or treatment of bone loss in high-risk patients. Denosumab (Prolia) has not been proven to be safer or more effective than generic bisphosphonates but is more costly. For patients unable to use oral bisphosphonates due to gastrointestinal (GI) issues, IV bisphosphonates are a treatment option as they do not have direct GI irritant effects.

Denosumab is also marketed as Xgeva and is indicated for the treatment of skeletal complications of bone metastases from solid tumor cancers, treatment of giant cell tumor of the bone, or hypercalcemia of malignancy. Use of Prolia for these indications is considered not medically necessary as dosage and frequency of administration differ between indications and products.

The use of denosumab (Prolia) for the prevention of postmenopausal osteoporosis is considered investigational as there is no evidence supporting its safety and efficacy in
this population. A number of other therapies (e.g., lifestyle modifications, calcium and vitamin D, bisphosphonates) may be appropriate in select patients.

- In addition, there is insufficient evidence to establish that the use of denosumab (Prolia) in combination with anabolic agents, such as teriparatide (Forteo) or abaloparatide (Tymlos), is more effective than monotherapy with either agent.

- Although the risk for osteonecrosis of the jaw (ONJ) and atypical femoral fracture (AFF) may be increased with long-term bisphosphonate use, the absolute risk reduction of clinical fractures with these medications are far greater than the absolute risk of AFF and ONJ. [3]

- The 2019 Endocrine Society Osteoporosis guideline and American Society for Bone and Mineral Research (ASBMR) recommend post-menopausal women be evaluated for fracture risk after 3-5 years of bisphosphonates. Patients with low-moderate fracture risk may consider a drug holiday, which is defined as a period of time when no osteoporosis medications are given. For patients with high risk (which include multiple spine fractures or hip/spine BMT <-2.5) osteoporosis treatment should be continued, as the benefits likely outweigh potential harms. [4]

- The 2019 Endocrine Society guidelines also recommend dual-energy X-ray absorptiometry (DEXA) at the spine and hip every 1 to 3 years to assess the response to treatment. While there is uncertainty regarding what is considered an adequate response, guidelines state the stable or increasing BMD may indicate a good response. Switching treatments may also be considered in patients who experience a fracture. [4]

- There have not been adequate studies to evaluate the efficacy of switching to alternative therapies and the optimal duration of bisphosphonate therapy is unclear.

Clinical Efficacy

Osteoporosis

- Denosumab (Prolia) has not been proven in reliable clinical studies to be more effective than generic options.

- There are several randomized controlled trials (RCTs) assessing the efficacy of denosumab (Prolia) relative to placebo or alendronate. [5-8] However, only one trial studied the clinically meaningful endpoint of fracture prevention. [7] The other efficacy trials used percent change in bone mineral density (BMD) or geometric parameters as the primary endpoint. [5 6 8 9] BMD is a surrogate marker and change in BMD is poorly correlated to fracture prevention. Furthermore, geometric parameters remain a research method versus a clinical technique.

* A single trial established the efficacy of denosumab (Prolia) with regard to decreased fracture risk in postmenopausal osteoporosis compared to placebo. [7]

* Denosumab (Prolia) reduces the risk of vertebral, hip and non-vertebral fractures in post-menopausal women with osteoporosis over 36 months when compared to placebo.

* Data from the long-term extension are available. Reduction in bone turnover and increases in BMD were maintained over time with denosumab (Prolia); however,
due to the cross-over design of the trial, the benefit for reducing fracture risk beyond 36 months of treatment cannot be determined. [10 11]

- There are trials comparing denosumab (Prolia) to weekly alendronate for the treatment of osteoporosis in post-menopausal women; however, there are limitations to these data.
  
* The primary endpoint of many of these trials is BMD changes at 12 months, which is not as clinically relevant as fracture data. [5 6]

* Another study performed a post-hoc analysis of a subset of patients (n = 116) enrolled in a phase 2 dose-ranging study. The primary endpoint of this study was geometric strength parameters. Although the effects of denosumab (Prolia) were greater than alendronate in select bone sites, the results are only suggestive of a correlation to improved fracture data and do not definitively prove that denosumab (Prolia) is superior to alendronate for preventing osteoporosis-related fractures. [9]

- The FRAX tool ([www.shef.ac.uk/FRAX](www.shef.ac.uk/FRAX)) was developed by the World Health Organization (WHO) to evaluate fracture risk of patients. It integrates clinical risk factors with BMD at the femoral neck. The FRAX tool provides the 10-year probability of fracture. The output is a 10-year probability of hip fracture and the 10-year probability of a major osteoporotic fracture (forearm, shoulder, or clinical vertebral fracture).

- Treatment should be considered if the 10-year risk is 3% or more for hip fracture or 20% or more for “major” osteoporosis-related fracture based on the US-adapted WHO algorithm (FRAX tool). [12]

- 2019 Endocrine Society Osteoporosis guideline recommend initial treatment with bisphosphonates (alendronate, risedronate, zoledronic acid, and ibandronate). They are available at low cost and have a long history of use. Denosumab (Prolia) is considered an alternative initial treatment for patients who are not candidates for a bisphosphonate or who have not had an adequate response to bisphosphonates[4]

- For patients who are at very high risk of fracture, initial therapy with a denosumab or an anabolic agent may be considered. The Endocrine Society Guidelines define very high risk as those with severe osteoporosis (low T-score < −2.5 and fractures) or multiple vertebral fractures. [4]

- An injectable option [e.g., zoledronic acid, denosumab (Prolia), romosozumab (Evenity), abaloparatide (Tymlos), or teriparatide (Forteo, Bonsity)] is recommended for those with a prior fragility fracture or indicators of higher fracture risk (e.g., advanced age, frailty, glucocorticoids, very low T-scores, or increased fall risk); however, no one specific injectable option is preferred over another. [12] Of the treatment options, generic zoledronic acid is the lowest cost treatment choice.

- The evidence for combination use of denosumab (Prolia) and teriparatide (Forteo) is limited to one small trial in post-menopausal women (n = 94). Although the combination resulted in a larger increase in BMD than either agent alone, there are no fracture data available. [13] Combination therapy substantially raises the cost and probably increases the potential for side effects. Until the effect of combination therapy on fracture is better understood, the AACE/ACE does not recommend concomitant use of these agents. [1 2]
Prevention of Osteoporosis due to Hormone Suppression

- For prostate cancer and breast cancer patients on hormone suppression therapy, hormone suppression increases bone turnover and decreases bone mineral density.
- There is a limited body of evidence for fracture prevention during hormone suppression therapy for prostate cancer and breast cancer. Trials were designed to demonstrate an increase in BMD or time to first fracture, rather than a reduction in fracture risk. BMD is a surrogate for fracture risk, a more clinically meaningful measure of efficacy. The effect of denosumab (Prolia) on overall survival remains unknown.

**Prostate Cancer**

* For the treatment of bone loss in men with prostate cancer receiving androgen deprivation therapy (ADT), the evidence for efficacy for denosumab (Prolia) comes from a randomized, placebo-controlled trial in men with nonmetastatic prostate cancer. [14]

* Following two years of treatment, the lumbar spine BMD was higher in denosumab (Prolia)-treated patients compared to placebo-treated patients. Denosumab (Prolia) also significantly reduced the incidence of new vertebral fractures (a secondary endpoint) at three years.

* In addition to denosumab (Prolia), there is evidence that pamidronate, zoledronic acid, and alendronate increase BMD during ADT for prostate cancer.

* There is no comparative evidence between bisphosphonates or denosumab (Prolia) for prevention of osteoporosis due to hormone suppression in patients with prostate cancer.

* The National Comprehensive Cancer Network (NCCN) Prostate Cancer guideline recognizes both denosumab (Prolia) and bisphosphonates (zoledronic acid or alendronate) to increase bone density, a surrogate for fracture risk in men without metastases receiving ADT. Treatment with any of these agents is recommended when the absolute fracture risk warrants drug therapy, with no preference for one agent over another. [15]

**Breast Cancer**

* For the treatment of bone loss in women with breast cancer receiving adjuvant aromatase inhibitor therapy, the evidence for efficacy for denosumab (Prolia) comes from a randomized, placebo-controlled trial. [16] Following one year of treatment, the lumbar spine BMD was higher in denosumab (Prolia)-treated patients compared to placebo-treated patients.

* Another study (ABCSG-18) evaluated the effects of denosumab (Prolia) relative to placebo on time to first clinical fracture in postmenopausal, aromatase inhibitor-treated patients with early-stage hormone receptor-positive breast cancer. [17] Compared to placebo, patients treated with denosumab (Prolia) had a significantly delayed time to first clinical fracture.

* There is no evidence that that denosumab (Prolia) is superior to intravenous bisphosphonates in the early breast cancer setting.
• Denosumab (Prolia) has not been directly compared to any active treatment, such as intravenous bisphosphonates, for the prevention of skeletal fractures, delay of disease recurrence, or overall survival in patients with early breast cancer.

• The ABCSG-18 study [17] evaluated the impact of denosumab (Prolia) on disease-free survival (DFS) as a secondary endpoint in women with breast cancer. These results were not reported with the original study publication.
  - The intent-to-treat analysis of DFS showed an absolute difference of 1.2% favoring denosumab (Prolia) compared to placebo, and barely met the statistical significance threshold (p = 0.051). [18]
  - These data, along with overall survival data, have not yet been formally published.

* The NCCN Breast Cancer guideline recommends that women on adjuvant aromatase inhibitor therapy should have monitoring of bone health with a BMD determination at baseline and periodically thereafter. The use of a bisphosphonate is generally the preferred intervention to improve BMD. [19]

**Safety**
- The most common side effects reported with denosumab (Prolia) include urinary tract infection, upper respiratory tract infection, cataract, constipation, rash, sciatica, and pain in the extremities. [17]
- Both bisphosphonates and denosumab (Prolia) have labeled warnings for risk of osteonecrosis of the jaw (ONJ).
  * ONJ was first reported in patients with advanced cancer receiving high-dose (monthly) bisphosphonate therapy. The incidence of ONJ is much lower with bisphosphonate therapy for osteoporosis (usually annual dosing). [20]
  * When compared to cancer patients receiving antiresorptive treatment, the risk of ONJ for patients with osteoporosis exposed to antiresorptive medications is about 100 times smaller. [21]
  * Based on the current data, the risk of developing ONJ among osteoporotic patients exposed to bisphosphonates or denosumab (Prolia) is real but remains very low. The risk for ONJ among patients treated with either zoledronic acid or denosumab (Prolia) approximates the risk for ONJ of patients enrolled in placebo groups. [21] There is no evidence to establish that denosumab (Prolia) has a lower risk of ONJ, as compared to bisphosphonates (oral or injectable).
  * The risk versus benefit profile should be carefully considered for use of bone resorptive agents (bisphosphonates or denosumab (Prolia)). Poor baseline health or dental procedures during treatment are known risk factors for ONJ. Thus, patients should be referred for dental evaluation before starting either agent.
- Because of potential safety concerns with long-term use of denosumab (Prolia), it appears to have a less favorable risk versus benefit profile than bisphosphonates for the prevention of osteoporosis.

- Denosumab (Prolia) contains a warning for an increased risk of fracture following discontinuation of denosumab (Prolia) treatment. Patients who discontinue denosumab (Prolia) should be transitioned to an alternative antiresorptive therapy. Please note that bisphosphonates (including intravenous zoledronic acid) and raloxifene are available without pre-authorization and may be used to transition patients.

- Denosumab (Prolia) has a risk evaluation and mitigation strategy (REMS) in place to help ensure that potential for these risks is considered prior to use. [19]

### Cross References

| Anabolic Bone Medications, Medication Policy Manual, Policy No. dru612 |

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J0897</td>
<td>Injection, denosumab (Prolia, Xgeva) 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2430</td>
<td>Injection, pamidronate disodium, per 30 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3489</td>
<td>Injection, zoledronic acid (Reclast), 1 mg</td>
</tr>
</tbody>
</table>
References


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/15/2021</td>
<td>Updated criteria to bypass step therapy requirements for patients at very high risk of fracture (T-score at or below -2.5 and a history of fragility fracture, or multiple fragility fractures).</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Removed Site of Care Program requirement.</td>
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</table>
| 10/28/2020    | • Added COT criteria.  
• Revised definition of ineffectiveness for bisphosphonates. |
| 10/23/2019    | • No changes to criteria.  
• Drug holidays addressed in supporting statement. |
| 10/19/2018    | Clarified investigational uses. |
| 07/20/2018    | • Clarified intent of raloxifene step therapy (ineffective).  
• Updated criteria with standard policy language (no changes to intent). |
| 8/11/2017     | Added raloxifene as an option for step therapy. |
| 3/10/2017     | Clarified use in combination with teriparatide (Forteo) is considered investigational. |
| 11/11/2016    | Removed site of care language from the individual drug policy; however, requirements still apply. Reference to Site of Care Review, dru408 is provided as part of criterion IA. |
| 10/21/2016    | Clarified that both IV and oral bisphosphonates are contraindicated in criterion B.2.c; however, the intent of this criterion has not changed. |
| 3/11/2016     | No criteria changes. |

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Ipilimumab (Yervoy) is an intravenous immune therapy medication used as a monotherapy or in combination with nivolumab (Opdivo) to treat certain types of cancers.
Policy/Criteria

Most contracts require pre-authorization approval of ipilimumab (Yervoy) prior to coverage.

I. Continuation of therapy (COT): Ipilimumab (Yervoy) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   
   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   
   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Ipilimumab (Yervoy) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that one of the following criterion A through G below is met.

A. A diagnosis of melanoma, unresectable (stage III) or metastatic (stage IV), when ipilimumab (Yervoy) will be given in one of the following two treatment settings (1 or 2):
   1. Ipilimumab (Yervoy) will be used as monotherapy.

   OR

   2. Ipilimumab (Yervoy) will be given in combination with nivolumab (Opdivo).
OR

B. A diagnosis of *melanoma, resectable* when criteria 1, 2, and 3 below are met:
   1. Documentation of pathologic involvement of regional lymph nodes (stage III).
   AND
   2. Ipilimumab (Yervoy) is used as adjuvant treatment (after complete surgical resection).
   AND
   3. Ipilimumab (Yervoy) will be used as monotherapy.

OR

C. A diagnosis of *colorectal cancer* (CRC), locally advanced or metastatic, when criteria 1, 2, and 3 below are met:
   1. The tumor is microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) by immunohistochemistry (IHC) or polymerase chain reaction (PCR) testing.
   AND
   2. There has been disease progression during or after prior therapy with a fluoropyrimidine (e.g., fluorouracil, capecitabine), oxaliplatin, and irinotecan, unless all are not tolerated or there is a documented medical contraindication to each of the three options.
   AND
   3. Ipilimumab (Yervoy) will be used in combination with nivolumab (Opdivo) for a maximum of four doses.

OR

D. A diagnosis of *renal cell carcinoma* (RCC), unresectable locally advanced or metastatic, when criteria 1, 2, and 3 below are met:
   1. The disease is considered intermediate- or poor risk (see Appendix 2).
   AND
   2. There has been no prior systemic therapy in the advanced disease setting.
   AND
   3. Ipilimumab (Yervoy) will be used in combination with nivolumab (Opdivo) for a maximum of four doses.

OR

E. A diagnosis of *non-small cell lung cancer* (NSCLC), advanced or metastatic, when criteria 1 and 2 below are met:
   1. No prior use of systemic anti-cancer therapy for advanced or metastatic disease (used in the first-line setting).
AND

2. ONE of the following applies (a or b):
   a. The tumor expresses PD-L1 (≥ 1%) AND ipilimumab (Yervoy) will be in combination with nivolumab (Opdivo).
   OR
   b. Ipilimumab (Yervoy) will be used in combination with nivolumab (Opdivo) and two cycles of platinum-doublet chemotherapy.

OR

F. A diagnosis of **hepatocellular carcinoma** (HCC) when criteria 1 and 2 below are met:
   1. There has been disease progression on, or intolerance to an HCC-active oral tyrosine kinase inhibitor (TKI) [such as sorafenib (Nexavar), or lenvatinib (Lenvima)].
   AND
   2. Ipilimumab (Yervoy) will be used in combination with nivolumab (Opdivo) for a maximum of four doses.

OR

G. A diagnosis of **malignant pleural mesothelioma** (MPM), unresectable, when criteria 1 and 2 below are met:
   1. No prior use of systemic therapy for advanced disease.
   AND
   2. Ipilimumab (Yervoy) is used in combination with nivolumab (Opdivo).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers ipilimumab (Yervoy) coverable only under the medical benefit (as a provider-administered medication).

B. When preauthorization is approved, ipilimumab (Yervoy) will be authorized as follows:
1. As monotherapy (melanoma):

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Dosing, as a monotherapy</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma, resectable (adjuvant)</td>
<td>Up to 10 mg/kg every 3 weeks for four doses, then up to 10 mg/kg every twelve weeks.</td>
<td>Until disease recurrence or for a maximum of 3 years.</td>
</tr>
</tbody>
</table>
| Unresectable or metastatic melanoma           | Up to 3 mg/kg/dose (up to 600 billing units per claim (600 mg)), for four doses. | **Initial Authorization:**
|                                               |                          | Up to four infusions (one treatment course), or until disease progression. |
|                                               |                          | **Reauthorization:**
|                                               |                          | Up to four additional infusions (maximum of one additional treatment course) may be authorized if there is documented disease progression after an initial response to Yervoy followed by at least 3 months of disease stability. |

2. Combination therapy with nivolumab (Opdivo):

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Dosing, in combination with nivolumab (Opdivo)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRC, RCC</td>
<td>Up to 1 mg/kg/dose for four doses with nivolumab (then nivolumab monotherapy).</td>
<td>One-time for a maximum of four infusions (one treatment course), or until disease progression.</td>
</tr>
<tr>
<td>HCC, Unresectable or metastatic melanoma</td>
<td>Up to 3 mg/kg/dose for four doses with nivolumab (then nivolumab monotherapy).</td>
<td></td>
</tr>
<tr>
<td>NSCLC, MPM</td>
<td>Up to 1 mg/kg/dose every 6 weeks with nivolumab.</td>
<td>Until disease progression or for a maximum of 2 years (or 24 months).</td>
</tr>
</tbody>
</table>

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Ipilimumab (Yervoy) is considered investigational when:

**A.** Infused for more than the dose-maximum listed above (including more than 4 doses for unresectable or metastatic melanoma, CRC, HCC, and RCC).

**B.** Used in combination with other anticancer medications other than those specifically listed above, including but not limited to other immunotherapies and targeted therapies.
C. Used for all other conditions, including but not limited to:

1. Breast cancer.
2. Cervical cancer.
3. Leukemia.
5. Ovarian cancer.
7. Prostate cancer.
8. Sarcoma.
10. Urothelial cancer.

**Position Statement**

- Ipilimumab (Yervoy) is a human cytotoxic T-lymphocyte antigen 4 (CTLA-4) blocking antibody which is used in the treatment of melanoma, either alone or in combination with nivolumab (Opdivo) for specific cancers.

- The intent of this policy is to cover ipilimumab (Yervoy) in settings where it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

* Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of ipilimumab (Yervoy) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

* It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Many of the clinical indications for immunotherapies (such as CTLA-4, PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- National Comprehensive Cancer Network (NCCN) guidelines recommend ipilimumab (Yervoy) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.

- Ipilimumab (Yervoy) is associated with severe and life-threatening immune-mediated adverse reactions.

- Ipilimumab (Yervoy) is given as an intravenous infusion over 30 to 90 minutes. It is covered up to the maximum doses and durations listed in package labeling for the various disease settings for which it is approved, as specified in the coverage criteria.
Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different CTLA-4, PD-1/PD-L1 inhibitors once there is disease progression on prior CTLA-4 therapy. Therefore, the use of sequential courses of CTLA-4 immunotherapy is not coverable.

There are ongoing studies using ipilimumab (Yervoy) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

Cutaneous Melanoma

- Ipilimumab (Yervoy) may be covered for treatment of advanced malignant cutaneous melanoma that is unresectable or has metastasized to other areas, a setting where it has been shown to improve overall survival relative to supportive care.

As monotherapy for advanced melanoma

- A large study evaluated the effects of ipilimumab (Yervoy) on overall survival (OS) in patients with previously treated, unresectable, or metastatic melanoma. [1]
  * The triple-arm study included 676 patients with unresectable or metastatic melanoma who had received one or more prior treatments.
  * The study compared ipilimumab (Yervoy) with a gp100 peptide vaccine (an experimental immunotherapy used in the treatment of melanoma). gp100 peptide vaccine has not been shown to impact OS in this population.
  * Ipilimumab (Yervoy) was administered in a dose of 3 mg/kg intravenously (IV) every three weeks for a total of 4 doses (one treatment course).
  * Patients in the study who received ipilimumab (Yervoy) had a median OS of approximately 10 months, compared with a reported median OS of 6.4 months in the vaccine-only arm. This is considered a clinically relevant improvement in OS.
  * Limitations to the study included uncertain blinding and concealment of allocation, and uncertainty as to whether the comparator (peptide vaccine) had any positive or negative impact on study patients.

- Ipilimumab (Yervoy) has not been compared with any other therapy for unresectable or metastatic melanoma in patients who have had prior medication therapy for melanoma. [2]

- A second study compared ipilimumab (Yervoy) plus dacarbazine versus dacarbazine alone in patients with unresectable or metastatic melanoma who had no prior medication therapy. [3]
  * The study reported a median OS advantage of approximately 2 months in the ipilimumab (Yervoy) treatment arm.
* There is low confidence in the results from the trial because of a very high proportion of missing data (~35%) and the potential for confounding due to additional therapies that were used after disease progression.

**Combination with nivolumab (Opdivo) for advanced melanoma**

- The use of ipilimumab (Yervoy) in combination with nivolumab (Opdivo) was studied in one randomized, double-blind, triple-arm study included 945 patients with unresectable or metastatic melanoma. [4]

- Patients had not received prior systemic therapy for advanced disease, such as ipilimumab (Yervoy) or a programmed death-1 (PD-1) inhibitor [nivolumab (Opdivo), or pembrolizumab (Keytruda)].

- Patients were treated with ipilimumab (Yervoy) 3 mg/kg IV along with nivolumab (Opdivo) 1 mg/kg IV every three weeks for four doses, followed by nivolumab (Opdivo) 3 mg/kg IV every two weeks, until disease progression.

- Combination therapy improved median PFS by approximately 8.5 months relative to monotherapy with either ipilimumab (Yervoy) or nivolumab (Opdivo) [11.5 months versus 2.9 months or 6.9 months, respectively]. The OS data was not yet mature at the time this trial was published.

- Ipilimumab (Yervoy) has not been studied in combination with pembrolizumab (Keytruda), another PD-1 inhibitor.

**Adjuvant therapy for advanced melanoma**

- The risk versus the potential benefit of high-dose ipilimumab (Yervoy) as an adjuvant therapy for **resectable cutaneous melanoma** with pathologic involvement of regional lymph nodes (stage III) is unclear. This regimen is poorly tolerated, and it is not known if the toxicities of this therapy outweigh potential clinical benefit.

- A large, randomized, double-blind, trial evaluated ipilimumab (Yervoy) as an adjuvant therapy in subjects with stage III, resectable cutaneous melanoma. [5,6]

- Subjects were diagnosed with histologically confirmed cutaneous melanoma that was metastatic to the lymph nodes only and had complete excision of the cutaneous lesion with good margins and a complete regional lymphadenectomy. Ipilimumab (Yervoy) 10 mg/kg (high-dose) was compared with placebo, each given IV every three weeks for four doses, then every three months for a maximum of three years.

- At a medium follow-up of 2.7 years, recurrence-free survival (RFS), the primary endpoint, was improved in the ipilimumab (Yervoy) therapy arm relative to placebo (26 months versus 17 months, respectively).

- In an updated analysis, at a medium follow-up of 5.3 years, the rate of OS was 65.4% in the ipilimumab (Yervoy) group, as compared to 54.4% in the placebo group (hazard ratio for death, 0.72; 95.1% CI, 0.58 to 0.88; P = 0.001).

- More than half of the subjects withdrew from the ipilimumab (Yervoy) treatment arm due to adverse events versus only 4% in the placebo arm. Immune-related adverse events of any grade occurred in 90% of patients in the ipilimumab (Yervoy) group and 40% of patients in the placebo group. Immune-related adverse events of grade 3 to 5 occurred in 43% of patients in the ipilimumab (Yervoy) treatment...
group and in 3% of patients in the placebo group. Additionally, five patients in the ipilimumab (Yervoy) arm died due to immune-mediated adverse events attributed to treatment.

Despite FDA approval, the small change in OS, high toxicity, and poor tolerability of high-dose ipilimumab (Yervoy) observed in this study, it is unclear if the harms of this therapy outweigh any potential clinical benefit when it is used as an adjuvant therapy after complete resection of cutaneous melanoma and regional lymphadenectomy due to pathologic involvement of regional lymph nodes. In addition, there are no studies demonstrating the efficacy of ipilimumab (Yervoy) when used at a lower dose in the adjuvant setting, or whether a potential clinical benefit at a lower dose will outweigh toxicities.

Renal cell carcinoma (RCC)

- Ipilimumab (Yervoy) initiated in combination with nivolumab (Opdivo) was approved in untreated, intermediate- to high-risk, advanced RCC based on preliminary evidence where it demonstrated a modest improvement in survival at 18 months relative to sunitinib (Sutent). A large, randomized, open-label trial compared the combination of ipilimumab (Yervoy) plus nivolumab (Opdivo) with sunitinib (Sutent) as initial therapy for patients with intermediate- to poor risk, unresectable or metastatic RCC. [7]

  * Ipilimumab (Yervoy) was initiated with nivolumab (Opdivo) and was administered for four doses total. Nivolumab (Opdivo) was then continued as monotherapy until disease progression.

  * The population included patients of favorable-, intermediate-, or poor-risk disease based on the International Metastatic RCC Database Consortium (IMDC) prognostic model; however, only patients with intermediate- or poor risk disease were evaluated for efficacy.

  * There was no statistical difference in progression-free survival (PFS) between the two treatment groups.

  * There was no difference in radiographic disease progression detected between the two treatment groups. It is too soon to know if the absolute survival difference is clinically relevant as median survival has not been met in either treatment group. An interim analysis at 18 months demonstrated a survival benefit in the ipilimumab (Yervoy) plus nivolumab (Opdivo) treatment arm relative to sunitinib (Sutent) [HR 0.63 (99.8% CI: 0.44, 0.89)]. Median OS has not been reached in either group.

  * Potential areas of bias which may erode the reported survival difference between the therapies include lack of blinding, and a high proportion of subjects who stopped taking study medication who then crossed over to other therapies.

- It is not known how ipilimumab (Yervoy) plus nivolumab (Opdivo) compares with other front-line therapy options. To date this combination has only been compared with sunitinib (Sutent).

- It is too early to determine the overall net health benefit of ipilimumab (Yervoy) plus nivolumab (Opdivo) in advanced RCC.
**Hepatocellular carcinoma (HCC)**

- Ipilimumab (Yervoy) was approved in combination with nivolumab (Opdivo) for advanced HCC after progression of disease on sorafenib (Nexavar) based on a small, low-quality study where it was found to shrink the size of tumors in about one out of three patients. A small cohort of patients with advanced HCC who had progressed during or after sorafenib (Nexavar) therapy was evaluated in this low-quality, single-arm, open-label, observational trial. [2]

  * Ipilimumab (Yervoy) was initiated with nivolumab (Opdivo) and was administered for four doses total. Nivolumab (Opdivo) was then continued as monotherapy until disease progression.

  * All patients in the trial had a Child-Pugh class of A5 or A6. Eighty percent had extrahepatic spread of their disease.

- Sixteen of 49 patients (33%) demonstrated a tumor response during the trial. Only 4 patients (8%) had a complete response. To date there is no evidence that it improves any relevant clinical outcome (e.g., overall survival, quality of life, function, symptom control) in this disease setting.

**Colorectal cancer (CRC)**

- Ipilimumab (Yervoy) was approved in combination with nivolumab (Opdivo) for patients with mismatch repair deficient (dMMR) or microsatellite stability-high (MSI-H) metastatic CRC based on a small, low-quality, single-arm cohort observational study where it was found to shrink the size of tumors in about one out of two patients. [2]

  * All of the patients enrolled in the trial had disease progression during or after prior treatment with fluoropyrimidine-, oxaliplatin-, or irinotecan-based chemotherapy.

  * Ipilimumab (Yervoy) was initiated with nivolumab (Opdivo) and was administered for four doses total. Nivolumab (Opdivo) was then continued as monotherapy until disease progression.

  * All patients had microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) metastatic disease.

  * Thirty-eight (46%) of 82 patients in the cohort had a tumor response during the trial. Only three patients (3.7%) had a complete response.

- To date there is no evidence that it improves any relevant clinical outcome (e.g., overall survival, quality of life, function, symptom control) in this disease setting.

**Non-small cell lung cancer (NSCLC)**

- Ipilimumab (Yervoy) was approved in combination with nivolumab (Opdivo) as a front-line therapy for patients with recurrent or metastatic NSCLC two different settings, based on improved overall survival relative to platin-doublet chemotherapy:

  * In patients with no known EGFR mutations or ALK translocations, regardless of PD-L1 status when given with two cycles of platin-doublet chemotherapy.
* In patients with no known EGFR mutations or ALK translocations, but whose tumors expressed PD-L1 (≥ 1%).

- Approval of ipilimumab (Yervoy) in combination with nivolumab (Opdivo) as a front-line therapy in patients with metastatic NSCLC expressing PD-L1 (≥ 1%) is based on an open-label trial that compared this immunotherapy regimen with platin-doublet chemotherapy. [2,8]

* Patients had no known EGFR mutations or ALK translocations.
* Patients were given ipilimumab (Yervoy) every 6 weeks plus nivolumab (Opdivo) every 2 weeks until disease progression, or up to two years in patients without disease progression.
* The median OS was 17.1 months [95% CI: 15.0, 20.1] and 14.9 months [95% CI: 12.7, 16.7] in the ipilimumab (Yervoy) plus nivolumab (Opdivo) and platinum-doublet chemotherapy treatment arms, respectively.

- Approval of ipilimumab (Yervoy) in combination with nivolumab (Opdivo) as a front-line therapy in patients with metastatic NSCLC regardless of PD-L1 status is based on an open-label trial that compared this immunotherapy regimen plus two cycles of platin-based chemotherapy with standard platin-doublet chemotherapy. [2]

* To be enrolled in the trial, patients could have no known EGFR mutations or ALK translocations.
* Patients were given ipilimumab (Yervoy) every 6 weeks plus nivolumab (Opdivo) every 3 weeks in combination with two cycles of a platinum-doublet until disease progression, or up to two years in patients without disease progression.
* The median OS was 14.1 months [95% CI: 13.2, 16.2] and 10.7 months [95% CI: 9.5, 12.5] in the ipilimumab (Yervoy) plus nivolumab (Opdivo) plus platin-doublet chemotherapy, and platinum-doublet chemotherapy treatment arms, respectively.

**Malignant pleural mesothelioma (MPM)**

- Ipilimumab (Yervoy) was approved in combination with nivolumab (Opdivo) as a front-line therapy for patients with unresectable MPM based on a large, open-label randomized controlled trial (RCT) that demonstrated a four-month improvement in median OS relative to platin-based chemotherapy, the standard of care. [9]

* Patients were given ipilimumab (Yervoy) every 6 weeks [in combination with nivolumab (Opdivo)] until disease progression, or up to two years in patients without disease progression.
* The median OS was 18.1 months and 14.1 months in the ipilimumab (Yervoy)/nivolumab (Opdivo) and chemotherapy treatment arms, respectively [HR 0.74 (95% CI 0.61, 0.89); p = 0.002].
CLINICAL GUIDELINES

- The National Comprehensive Cancer Network (NCCN) melanoma guideline lists ipilimumab (Yervoy), and ipilimumab (Yervoy) plus nivolumab (Opdivo) as a category 2A recommendation as a second-line or subsequent therapy in patients with or without BRAF V600 mutation positive melanoma. The use of ipilimumab (Yervoy) in combination with nivolumab (Opdivo) is a category 1 recommendation in the first-line metastatic setting. [10]

- The NCCN gives high-dose ipilimumab (Yervoy) a category 2A recommendation in the adjuvant treatment of stage III cutaneous melanoma where it may have use when there has been prior exposure to anti-PD-1 therapy. [10]

- The NCCN melanoma guideline includes a footnote indicating that re-induction with ipilimumab (Yervoy) may be considered for select patients who experienced no significant systemic toxicity during prior therapy and who relapse after initial clinical response or progress after stable disease. [10,11]

For other cancers, the NCCN guideline lists the following:

- The combination of ipilimumab (Yervoy) plus nivolumab (Opdivo) among preferred treatment options for first-line intermediate- to poor-risk, unresectable or metastatic RCC. It is a category 2A recommendation for low-risk disease. [12]

- Ipilimumab (Yervoy) in combination with nivolumab (Opdivo) as a treatment option for microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) metastatic CRC when disease has progressed after FOLFOX or CAPEOX. [13,14]

- Ipilimumab (Yervoy) in combination with nivolumab (Opdivo) as a treatment option as a subsequent-line therapy for Child-Pugh Class A HCC. [15]

- The combination of ipilimumab (Yervoy) and nivolumab (Opdivo) among preferred, frontline regimens for MPM. [16]

- Ipilimumab (Yervoy) in combination with nivolumab (Opdivo) as a treatment option ‘useful in certain circumstances’ when the tumor expresses PD-L1. It is also listed as a category 2A ‘other’ recommendation as an initial therapy for metastatic NSCLC that does not express PD-L1. [17]

INVESTIGATIONAL USES

- Data to support the use of combination treatment with ipilimumab (Yervoy) and nivolumab (Opdivo) for the treatment of small cell lung cancer (SCLC) is limited to a single phase I/II trial. Response rates were reported with the combination treatment in SCLC after primary therapy, but not overall survival. Combination treatment with ipilimumab (Yervoy) and nivolumab (Opdivo) have not been shown to be superior to many available alternative therapies in patients with SCLC. Larger, well-designed, randomized, controlled trials are needed to confirm preliminary results. [18]

- Ipilimumab (Yervoy) demonstrated some antitumor activity in small trials in patients with non-Hodgkin Lymphoma, and sarcoma. Larger, well-controlled clinical trials in these settings are needed to confirm clinical benefit. [19-21]

- Ipilimumab (Yervoy) failed to demonstrate any clinical benefit in castration-resistant prostate cancer (as monotherapy) and small cell lung cancer (in combination with cytotoxic chemotherapy) in two large, phase 3 trials. [22, 23]
Safety \[2\]

- The most common adverse effects (AEs) reported with ipilimumab (Yervoy) include fatigue, diarrhea, pruritus, rash, and colitis. Additional common AEs observed at the higher, 10 mg/kg dose, include nausea, vomiting, headache, weight loss, pyrexia, decreased appetite, and insomnia. Ipilimumab (Yervoy) carries a boxed warning for severe immune-mediated adverse reactions including immune-mediated hepatitis and endocrinopathies. For severe reactions, the prescribing information recommends ipilimumab (Yervoy) be permanently discontinued. For moderate reactions, the prescribing information states the dose of ipilimumab (Yervoy) should not be given and systemic corticosteroids are recommended.

Dosing Considerations \[2\]

- Dosing and administration vary based on the setting in which ipilimumab (Yervoy) is used. Consult package labeling for details.

- High-dose (10 mg/kg IV every three weeks) ipilimumab (Yervoy), which is approved for adjuvant use in patients with stage 3 melanoma, is poorly tolerated. \[12\]

- The evidence for retreatment with ipilimumab when there is disease progression after initial response in patients with advanced melanoma is based on low-quality evidence. \[11,24,25\]

  * Patients in these observational studies were retreated with up to an additional four doses (one treatment course) of ipilimumab after disease progression.

  * Approximately half were able to achieve a temporary response to the additional treatment course. Most of the responders achieved stable disease; however, some patients had a partial response, and a few had a complete response.

  * It is not known if retreatment improves any clinical outcome such as improved survival or quality of life.
Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies

**Programmed death receptor-1 (PD-1) inhibitors**

- cemiplimab-rwlc (Libtayo)
- dostarlimab (Jemperli)
- nivolumab (Opdivo)
- pembrolizumab (Keytruda)

**Programmed death-ligand 1 (PD-L1) inhibitor**

- atezolizumab (Tecentriq)
- avelumab (Bavencio)
- durvalumab (Imfinzi)

*a Or as listed on the FDA.gov website. Several PD-1s are in the drug development pipeline. This is a list of the PD-1 inhibitors FDA-approved in the US at the time this policy was approved.

Appendix 2: International Metastatic Renal Cell Carcinoma Database Consortium (IMDC) Prognostic Model

<table>
<thead>
<tr>
<th>Number of Risk Factors</th>
<th>Expected Outcome</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>Low risk, with good prognosis</td>
</tr>
<tr>
<td>1 or 2</td>
<td>Intermediate risk</td>
</tr>
<tr>
<td>3 or more</td>
<td>Poor risk</td>
</tr>
</tbody>
</table>

**Risk factors:** *(predictors of shortened survival)*

- Serum hemoglobin < lower limit of normal
- Corrected serum calcium > upper limit of normal
- Karnofsky performance status score < 80% *(not capable of caring for self, or normal activity or work)*
- Time from initial diagnosis to initiation of treatment of < 1 year
- Absolute neutrophil count > upper limit of normal
- Platelets > upper limit of normal
Cross References

|荆abicio, averlumab, Medication Policy Manual, Policy No. dru499 |
|Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500 |
|Imlygic, talimogene laherparepvec, Medication Policy Manual, Policy No. dru445 |
|Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367 |
|Libtayo, cemiplimab-rwlc, Medication Policy Manual, Policy No. dru565 |
|Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390 |
|Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463 |

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<td>HCPCS</td>
<td>J9228</td>
<td>Injection, ipilimumab (Yervoy), 1 mg</td>
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References


## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>10/15/2021</td>
<td>No changes to coverage criteria with this annual update.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Updated criteria and quantity limits for advanced melanoma to allow for one additional treatment course (up to four additional ipilimumab infusions) in cases where disease has advanced three or more months after response to initial treatment.</td>
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</table>
| 4/21/2021     | - Added coverage criteria for malignant pleural mesothelioma.  
                - Clarification of criteria wording to align with associated policies (no change to intent).  
                - Updated the QLL language to include HCC and MPM.  
                - Updated 'Investigational uses' (added HCC to the indications list for more than 4 doses as being investigational. This was an oversight from a previous update). |
| 10/28/2020    | No changes to coverage criteria with this annual update. |
| 7/22/2020     | - Added coverage criteria for use in advanced hepatocellular carcinoma  
                - Added coverage criteria for use in front-line metastatic NSCLC  
                - Updated quantity limitations for new indications  
                - Updated 'Investigational uses' (removed NSCLC) |
| 10/23/2019    | Kidney cancer (renal cell carcinoma) was removed from the list of ‘Investigational’ conditions (oversight from prior update). No other changes to criteria or intent. |
| 08/17/2018    | - Added coverage criteria for use in advanced RCC and metastatic CRC.  
                - Updated the list of ‘investigational uses’ (added SCLC)  
                - Updated the ‘Administration, Quantity Limitations, and Authorization Period’ section to include the new indications and clarified duration of coverage for use in adjuvant melanoma |
| 10/13/2017    | Added coverage criteria for adjuvant use in resectable cutaneous melanoma when there is pathologic involvement of regional lymph nodes (stage III). |
| 05/13/2016    | - Added adjuvant use of high-dose (10 mg/kg) ipilimumab (Yervoy) for resectable cutaneous melanoma when there is pathologic regional lymph node involvement as not medically necessary. This is a newly approved FDA-labeled use.  
                - Updated guideline recommendations, added newly published evidence, and updated Appendices. |
| 12/11/2015    | - Added policy coverage criteria for the use in combination with Opdivo.  
                - Clarified that dose is 3 mg/kg.  
                - Add Appendix 1, with a list of available PD1s  
                - Add Appendix 3, with a list of other targeted therapies for melanoma |

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Medication Policy Manual

Policy No: dru264

Topic: Adcetris, brentuximab vedotin

Date of Origin: November 11, 2011

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Brentuximab vedotin (Adcetris) is an intravenously administered medication used in the treatment of certain lymphomas (Hodgkin lymphoma, as well as several types of rare non-Hodgkin lymphomas).
Policy/Criteria

Most contracts require pre-authorization approval of brentuximab vedotin (Adcetris) prior to coverage.

I. Continuation of therapy (COT): Brentuximab vedotin (Adcetris) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Brentuximab vedotin (Adcetris) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, C, or D below is met:

A. A diagnosis of classical Hodgkin lymphoma (cHL) when at least one of the criteria 1, 2 or 3 below are met:
   1. The disease is in advanced stages (stage III or IV) AND all of the following criteria are met:
      a. The patient has not received prior chemotherapy or radiotherapy.
      AND
b. The patient is in a high-risk category based on International Prognostic Score (IPS) of four or more. (See Appendix 1)

AND
c. Brentuximab vedotin (Adcetris) will be administered with AVD (doxorubicin, vinblastine, and dacarbazine).

AND
d. Bleomycin is contraindicated based on a diffusing capacity of the lungs for carbon monoxide (DLCO) value of < 60%.

AND
e. The patient does not have a sensory neuropathy, including, but not limited to documented neuropathy due to prior chemotherapy or diabetes.

OR

2. A diagnosis of relapsed/refractory cHL, as defined by one of the following criterion (a or b) below:
   a. An autologous stem cell transplant (ASCT) for cHL has not been successful.

   OR

b. A minimum of two prior multi-agent chemotherapy regimens for cHL were not effective or were not tolerated. (See Appendix 2)

OR

3. Brentuximab vedotin (Adcetris) will be used as post-ASCT consolidation therapy for cHL AND the patient is at high risk of relapse or progression as defined by one of the following three high-risk categories:
   a. Primary refractory cHL (i.e., failure to achieve complete remission following initial frontline therapy).

   OR

b. Relapsed cHL with an initial remission duration of less than 12 months.

   OR

c. Presence of extranodal involvement (e.g., chest wall, bone, lung, liver).

OR

B. A diagnosis of one of the following subtypes of CD30-expressing peripheral T-cell lymphoma (PTCL):
   1. Systemic anaplastic large cell lymphoma (sALCL).
   2. Peripheral T-cell lymphoma (PTCL), not otherwise specified (NOS).

OR

C. A diagnosis of primary cutaneous anaplastic large cell lymphoma (pcALCL) with multifocal lesions.
OR
D. A diagnosis of **CD30-expressing mycosis fungoides (MF)** when at least one prior systemic therapy has not been effective or was not tolerated.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider brentuximab vedotin (Adcetris) to be a self-administered medication.

B. When pre-authorization is approved, brentuximab vedotin (Adcetris) may be authorized in the following quantities:

1. **Classical Hodgkin lymphoma (cHL):**
   a. *Previously untreated stage III or IV:* Doses up to 120 mg every two weeks for a treatment course of up to 12 infusions.
   b. *Consolidation (post ASCT):* Doses up to 180 mg every three weeks for a treatment course of up to 16 infusions.
   c. *Relapsed/refractory disease:* Doses up to 180 mg every three weeks until disease progression.

2. For the following subtypes of CD30-expressing peripheral T-cell lymphoma: sALCL, PTCL NOS, and AITL:
   a. *Previously untreated disease:* Doses up to a maximum of 180 mg every three weeks for a treatment course of up to 8 infusions.
   b. *Relapsed disease:* Doses up to 180 mg every three weeks until disease progression.

3. **Primary cutaneous anaplastic large cell lymphoma (pcALCL):**
   Doses up to 180 mg every three weeks for a treatment course of up to 16 infusions.

4. **CD30-expressing mycoses fungoides (MF):** Doses up to 180 mg every three weeks for a treatment course of up to 16 infusions.

C. Authorization period:

1. **Classical Hodgkin lymphoma (cHL):**
   a. *Previously untreated stage III or IV, and consolidation (post ASCT):* No additional doses beyond the maximum number of doses stated above will be authorized.
   b. *Relapsed/refractory disease:* Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

2. For the following subtypes of CD30-expressing peripheral T-cell lymphoma: sALCL, PTCL NOS, and AITL:
   a. *Previously untreated disease:* No additional doses beyond the maximum number of doses stated above will be authorized.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
b. **Relapsed disease:** Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

3. **Primary cutaneous anaplastic large cell lymphoma (pcALCL):** No additional doses beyond the maximum number of doses stated above will be authorized.

4. **CD30-expressing mycoses fungoides (MF):** No additional doses beyond the maximum number of doses stated above will be authorized.

IV. Use of brentuximab vedotin (Adcetris) beyond one treatment course, as defined in section III.B., is considered investigational. Additionally, Brentuximab vedotin (Adcetris) is considered investigational when used for all other conditions.

**Position Statement**
- Brentuximab vedotin (Adcetris) is a medication that combines the action of an antibody with chemotherapy (an antibody-drug conjugate). It is directed against CD30, a cell membrane protein associated with certain types of lymphoma.
- Brentuximab vedotin (Adcetris) is approved for use in several classical Hodgkin lymphoma (cHL) settings, relapsed systemic anaplastic large cell lymphoma (sALCL), and relapsed primary cutaneous anaplastic large cell lymphoma (pcALCL) or CD30-expressing mycosis fungoides (MF). It is given via intravenous infusion over 30 minutes.
- In cHL, brentuximab vedotin (Adcetris) has been studied in the following populations:
  * In patients with stage III or IV disease as an initial therapy when given as a component of a chemotherapy regimen.
  * As consolidation therapy following autologous stem cell transplant (ASCT) in the following high-risk patient populations: those with primary refractory Hodgkin’s lymphoma (failure to achieve complete remission), relapsed Hodgkin’s lymphoma with an initial remission duration of less than 12 months, or extranodal involvement at the start of pre-transplantation salvage chemotherapy.
  * In patients with relapsed or refractory cHL who received a median of five prior therapies including ASCT.
- Several clinical trials have also evaluated brentuximab vedotin (Adcetris) in rare subtypes of CD30-expressing non-Hodgkin lymphomas, including systemic anaplastic large cell lymphoma (sALCL), primary cutaneous anaplastic large cell lymphoma (pcALCL), angioimmunoblastic T-cell lymphoma (AITL), peripheral T-cell lymphoma not otherwise specified (PTCL-NOS), and relapsed mycoses fungoides (MF).
- The evidence for brentuximab (Adcetris) is generally of low quality. Efficacy is based on response rates and progression-free survival. These surrogate endpoints have not been shown to correlate with improved survival or quality of life.
- The NCCN Hodgkin lymphoma guideline lists brentuximab vedotin (Adcetris) as a potential therapy (category 2A recommendation) for most of its labeled indications. The exception is when it is used as initial therapy for stage III or IV cHL where it gets a lower level recommendation (category 2B) unless the patient has an International Prognostic Score (IPS) of four or more, bleomycin is contraindicated, and there is no peripheral sensory neuropathy.

- The NCCN T-cell lymphomas guideline lists brentuximab vedotin (Adcetris) as the sole preferred, category 1 recommendation for primary treatment of pcALCL with multifocal lesions. It is listed among category 2A recommendations for other rare, CD30-expressing non-Hodgkin lymphomas including PTCL-NOS, AITL, relapsed ALCL, and relapsed MF.

- The most common adverse effects reported with brentuximab vedotin (Adcetris) include bone marrow depression, severe peripheral sensory neuropathy, infusion reactions, and risk of infection were reported in clinical trials. Peripheral neuropathy may persist after brentuximab vedotin (Adcetris) is discontinued.

- There is no evidence to support more than one treatment course of brentuximab vedotin (Adcetris), or continuation of therapy after disease progression. In addition, use of brentuximab vedotin (Adcetris) multiple disease settings within the same patient has not been studied. For example, if a patient receives a treatment course in the front-line setting, its use in a subsequent treatment setting (e.g., after relapse) has not been studied.

- There is interest in using brentuximab vedotin (Adcetris) in other types of cancers where CD30 may be expressed as well as in additional cHL settings; however, there is currently not sufficient evidence to support coverage outside of the clinical settings listed above.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

CLASSICAL HODGKIN LYMPHOMA (cHL)

- A phase II, single-arm trial evaluated the efficacy of brentuximab vedotin (Adcetris) in 102 subjects with Hodgkin lymphoma that was refractory to or relapsed following autologous stem cell transplantation (ASCT). [1]
  * The study reported overall response rates of 75% in this population.
  * Overall response rates have not been correlated with clinically meaningful outcomes (e.g., overall survival, quality of life) in this condition.

- It is not known how brentuximab vedotin (Adcetris) compares with cytotoxic chemotherapy in the treatment of Hodgkin Lymphoma. There is no evidence that compares brentuximab vedotin (Adcetris) with any other therapy in this setting, including best supportive care.
A published, phase III randomized controlled trial in 329 patients evaluated the efficacy of brentuximab vedotin (Adcetris) versus placebo as a consolidation therapy following ASCT in patients with Hodgkin lymphoma at high risk for relapse or progression. [2]

* Patients considered being at high risk for relapse or progression included patients with primary refractory primary refractory Hodgkin’s lymphoma (failure to achieve complete remission), relapsed Hodgkin’s lymphoma with initial remission duration of less than 12 months, or extranodal involvement at the start of pre-transplantation salvage chemotherapy.

* The primary endpoint was progression-free survival (PFS), with secondary endpoints focused on overall survival (OS) and safety.

* The majority (60%) of patients in the trial were refractory to frontline therapy and all patients were required to have obtained a complete remission (CR), partial remission (PR), or stable disease (SD) to salvage therapy prior to ASCT.

* The median PFS with brentuximab vedotin (Adcetris) was 42.9 months compared to 24.1 months for placebo.

* At the time of the interim analysis, there was no statistically significant difference in OS between groups. This endpoint was potentially confounded by crossover, as 85% of patients in the placebo arm received brentuximab vedotin (Adcetris) when the trial was unblinded.

* PFS has not been correlated with clinically meaningful outcomes (e.g., overall survival, quality of life) in this condition.

A large, open-label RCT compared standard chemotherapy (ABVD; doxorubicin, bleomycin, vinblastine, and dacarbazine) with brentuximab vedotin (Adcetris) plus chemotherapy (AVD; as above minus bleomycin) in patients with untreated, advanced stage (stage III or IV) cHL. [3]

* The 2-year PFS (independent assessors) was 77.2% and 82.1%, respectively. There was no statistically significant OS difference noted (2-year OS of 94.9% vs 96.6%, respectively; p = NS). To date, median values have not been reached for either PFS or OS.

* PFS is not a clinically relevant endpoint in cHL. It is too early to draw conclusions regarding the superiority of this regimen over standard chemotherapy.

* A significant increase in fever and neutropenia, some cases of which were fatal, was reported in the brentuximab vedotin (Adcetris) treatment arm. The risk versus benefit of this regimen has not been fully vetted as its impact on OS relative to the standard of care (ABVD) is currently not known.

The National Comprehensive Cancer Network (NCCN) guideline for Hodgkin lymphoma lists brentuximab vedotin (Adcetris) as an option (category 2A) for patients with relapsed or refractory disease (after a failed ASCT or when at least two prior multi-agent chemo-therapy regimens have not been effective) and for consolidation therapy following ASCT in patients at high risk for relapse or progression. Several multi-agent chemotherapy regimens are also listed as 2A recommendations (See Appendix 1). As a
front-line regimen for stage III or IV cHL, it is listed as a category 2B recommendation; however, for the subset of patients with high-risk (International Prognostic Score of ≥ 4) disease, a contraindication to bleomycin [diffusing capacity of the lungs for carbon monoxide (DLCO) ≥ 60], and no peripheral sensory neuropathy it is listed as a category 2A recommendation. [4]

OTHER cHL TREATMENT SETTINGS

- There is interest in using brentuximab vedotin (Adcetris) as a front-line option in older patients (> 60 years of age) with Hodgkin lymphoma who may be unable to tolerate conventional combination chemotherapy. Although initial findings appear promising, larger, well-controlled trials are needed to confirm the results. [5]

- The NCCN Hodgkin lymphoma guideline lists brentuximab vedotin (Adcetris) among a list of several potential second-line therapies for relapsed or refractory cHL. The evidence for use earlier in therapy is based on small, non-comparative (single-arm) trials that report overall response rates (ORR) as a surrogate endpoint.

  * A small, single-arm study conducted by Younis, et al. evaluated ORR in patients who received brentuximab vedotin (Adcetris) monotherapy for confirmed CD30-positive cHL who had relapsed or refractory disease after an autologous stem cell transplant (auto-SCT). The number of prior therapies (excluding the auto-SCT) ranged from one to thirteen, with a median of 3.5. Forty-two percent of patients had disease that was refractory to the most recent cHL therapy. The ORR in this study was reported as 75%. [6]

  * A second, small, single-arm, phase 1/2, multi-cohort study conducted by O'Connor, et al. evaluated safety (primary endpoint) and ORR (secondary endpoint) in patients with CD30-positive relapsed or refractory cHL. Thirty-seven patients entered the phase 2 (efficacy) portion of the study and received a combination of brentuximab vedotin (Adcetris) and bendamustine. Patients had at least one prior cHL therapy, with no upper limit for the total number of prior therapies. The median number of prior therapies was not reported; however, the population was described as being heavily pretreated and 78% of the population was reported to have received prior platinum-based therapy in the second- or subsequent-line setting. The ORR in this study was reported as 78%. [7]

- There is also interest in using brentuximab vedotin (Adcetris) for cHL in combination with nivolumab (Opdivo). Available published evidence is based on two, small, single-arm, observational trials.

  * Preliminary results from a study of 60 patients with relapsed or refractory cHL suggest complete remission rates that are similar to complete remission rates reported with second-line salvage chemotherapy. The durability of effect with this combination is not yet known. [8]

  * A second study in 46 previously untreated patients with cHL with a mean age of 71.5 years and who were considered unsuitable for standard chemotherapy (ABVD) was closed early because it did not meet predefined efficacy parameters. [9]
CD30-EXPRESSING PERIPHERAL T-CELL LYMPHOMAS (PTCL)

  * The trial compared the addition of brentuximab vedotin (Adcetris) to a backbone regimen of CHOP chemotherapy, to CHOP chemotherapy plus placebo.
  * Subjects enrolled in the trial had CD30-expression of at least 10% per immunohistochemistry.
  * The trial included the following subtypes of PTCL:
    - Systemic anaplastic large cell lymphoma (sALCL) [70%]
    - PTCL, not otherwise specified [16%]
    - Angioimmunoblastic T-cell lymphoma [12%]
    - Adult T-cell leukemia/lymphoma [2%]
    - Enteropathy-associated T-cell lymphoma [< 1%]
  * The efficacy was driven by the population with sALCL. There were too few subjects with adult T-cell leukemia/lymphoma and enteropathy-associated T-cell lymphoma to draw any conclusions regarding potential efficacy.
  * This trial excluded subjects with primary cutaneous ALCL (pcALCL).
  * Median PFS, the primary endpoint, was significantly longer in the brentuximab vedotin (Adcetris) versus the placebo arm of the trial. Median OS has not been reached in either treatment arm.

- A phase II, single-arm trial evaluated the efficacy of brentuximab vedotin (Adcetris) in 58 subjects with systemic ALCL that was refractory to or relapsed following at least one multi-agent chemotherapy regimen. [12]
  * The study reported overall response rates of 86% in this population.
  * Overall response rates have not been correlated with clinically meaningful outcomes (e.g., overall survival, quality of life) in this condition.

- The NCCN T-cell lymphomas guideline lists brentuximab vedotin (Adcetris) among several category 2A recommendations for certain rare, CD30-expressing non-Hodgkin lymphomas including PTCL-NOS, AITL, and relapsed ALCL. [13] (See Appendix 2)

PRIMARY CUTANEOUS ALCL AND CD30-EXPRESSING MYCOSIS FUNGOIDES

- A small, open-label RCT compared brentuximab vedotin (Adcetris) with physician’s choice of methotrexate or bexarotene (Targretin) in patients with either primary cutaneous anaplastic large cell lymphoma (pcALCL) or CD30-expressing mycosis fungoides (MF). [10]
  * Patients enrolled in the trial had relapsed or refractory disease with a median of two prior systemic therapies.
  * The therapies were evaluated based on their ability to achieve an objective response that lasted at least 4 months (ORR4). Patients in the brentuximab vedotin (Adcetris) and physician’s choice of therapy arms had an ORR4 of 56.3% and 12.5%, respectively.
ORR4 is a surrogate endpoint and has not been shown to predict improvement in survival in clinically relevant outcomes, such as OS and quality of life.

The NCCN T-cell lymphomas guideline lists brentuximab vedotin (Adcetris) as a preferred regimen (category 1) for pcALCL when multifocal lesions are present. It is listed among potential category 2A regimens for CD30-expressing MF.

USE IN OTHER CONDITIONS

A small, phase 1/2, observational trial evaluated tumor response rates in a mixed population of 29 subjects with various CD30-positive B-cell lymphomas. Patients in the trial were given six cycles of brentuximab vedotin (Adcetris) in combination with rituximab, cyclophosphamide, doxorubicin, and prednisone. The population included 22 subjects with primary mediastinal B-cell lymphoma (PMBCL), 5 subjects with diffuse large B-cell lymphoma (DLBCL), and 2 subjects with gray zone lymphoma (GZL). Consolidative radiation was used in 52% of the subjects. The trial is of low quality due to the small number of subjects, the heterogeneous population, and the lack of control (no comparator, randomization, or blinding).

The net health benefit of brentuximab vedotin (Adcetris) outside of the clinical settings described in the coverage criteria has not been confirmed.

Safety

The most commonly reported adverse events with brentuximab vedotin (Adcetris) in clinical trials included neutropenia, peripheral sensory neuropathy, fatigue, nausea, anemia, upper respiratory tract infection, diarrhea, pyrexia, rash, thrombocytopenia, cough, and vomiting.

Severe peripheral sensory neuropathy and neutropenia were responsible for the majority of dose reductions and interruptions during the brentuximab vedotin (Adcetris) clinical trials. Fatal and serious cases of fever and neutropenia have been reported with brentuximab vedotin (Adcetris) when given with AVD. Primary prophylaxis with filgrastim is recommended by the manufacturer.

Infusion reactions, Stevens-Johnson syndrome, and progressive multifocal leukoencephalopathy (PML) have also been reported with brentuximab vedotin (Adcetris).

A boxed warning was added to the prescribing information for brentuximab vedotin (Adcetris) in January 2012 stating that JC virus infection resulting in PML and death can occur in patients treated with brentuximab vedotin (Adcetris).

Coadministration of brentuximab vedotin (Adcetris) with strong CYP3A4 inhibitors (e.g., clarithromycin, itraconazole) may result in increased exposure to brentuximab vedotin (Adcetris), so close monitoring for adverse reactions is necessary.
**Dosing Considerations**

- Brentuximab vedotin (Adcetris) is given via intravenous infusion over 30 minutes.
- Dose delays and reductions are indicated for peripheral neuropathy and neutropenia.
- Brentuximab vedotin (Adcetris) is contraindicated for concomitant use with bleomycin.
- FDA-labeled dosing by indication:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Recommended dose</th>
<th>Frequency and Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously Untreated Stage III or IV cHL</td>
<td>1.2 mg/kg up to a max of 120 mg in combination with chemotherapy</td>
<td>Q2 weeks until a maximum of 12 doses (stop earlier if disease progression)</td>
</tr>
<tr>
<td>cHL consolidation</td>
<td>1.8 mg/kg up to a max of 180 mg</td>
<td>Q3 weeks until a maximum of 16 doses (stop earlier if disease progression)</td>
</tr>
<tr>
<td>Relapsed cHL</td>
<td>1.8 mg/kg up to a max of 180 mg</td>
<td>Q3 weeks until disease progression</td>
</tr>
<tr>
<td>Previously untreated sALCL or other CD30-expressing PTCLs</td>
<td>1.8 mg/kg up to a max of 180 mg in combination with chemotherapy</td>
<td>Q3 weeks with each cycle of chemotherapy for 6 to 8 doses</td>
</tr>
<tr>
<td>Relapsed sALCL</td>
<td>1.8 mg/kg up to a max of 180 mg</td>
<td>Q3 weeks until disease progression</td>
</tr>
<tr>
<td>Relapsed pcALCL or CD30-expressing MF</td>
<td>1.8 mg/kg up to a max of 180 mg</td>
<td>Q3 weeks until a maximum of 16 doses (stop earlier if disease progression)</td>
</tr>
</tbody>
</table>

cHL = classical Hodgkin lymphoma; sALCL = systematic anaplastic large cell lymphoma; MF = mycoses fungoides; pcALCL = primary cutaneous anaplastic large cell lymphoma; PTCL = peripheral T-cell lymphoma

**Appendix 1: International Prognostic Score (IPS) for Determining Risk Level in cHL**

Patients with High-Risk cHL have at least FOUR of the following risk factors:

- Male sex
- Age ≥ 45 years
- Stage IV disease
- Hemoglobin < 10.5 g/dL
- WBC ≥ 15 x 10⁹/L
- Lymphocyte count < 0.6 x 10⁹/L, or < 8% of WBC
- Leukocytosis (WBC ≥ 15,000/mm³)
- Serum albumin < 4 g/dL
### First-line therapies

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABVD&lt;sup&gt;a&lt;/sup&gt;</td>
<td>doxorubicin, bleomycin, vinblastine, dacarbazine</td>
</tr>
<tr>
<td>Stanford V&lt;sup&gt;a&lt;/sup&gt;</td>
<td>doxorubicin, vinblastine, mechloretamine, etoposide, vincristine, bleomycin, prednisone</td>
</tr>
<tr>
<td>BEACOPP</td>
<td>bleomycin, etoposide, doxorubicin, cyclophosphamide, vincristine, procarbazine, prednisone</td>
</tr>
<tr>
<td>brentuximab vedotin + AVD</td>
<td>brentuximab vedotin, doxorubicin, vinblastine, dacarbazine</td>
</tr>
<tr>
<td>CHOP&lt;sup&gt;a&lt;/sup&gt;</td>
<td>cyclophosphamide, doxorubicin, vincristine, prednisone, ± rituximab</td>
</tr>
<tr>
<td>CVP&lt;sup&gt;a&lt;/sup&gt;</td>
<td>cyclophosphamide, vincristine, prednisone, ± rituximab</td>
</tr>
<tr>
<td>rituximab&lt;sup&gt;a&lt;/sup&gt;</td>
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</tbody>
</table>

### Second-line therapy options<sup>b</sup>

<table>
<thead>
<tr>
<th>Therapy</th>
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<tbody>
<tr>
<td>DHAP</td>
<td>dexamethasone, cytarabine, cisplatin</td>
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<tr>
<td>ESHAP</td>
<td>etoposide, methylprednisolone, cytarabine, cisplatin</td>
</tr>
<tr>
<td>ICE</td>
<td>ifosfamide, carboplatin, etoposide</td>
</tr>
<tr>
<td>IGEV</td>
<td>ifosfamide, gemcitabine, vinorelbine</td>
</tr>
<tr>
<td>GVD</td>
<td>gemcitabine, vinorelbine, liposomal doxorubicin</td>
</tr>
<tr>
<td>- - - -</td>
<td>gemcitabine, bendamustine, vinorelbine</td>
</tr>
<tr>
<td>- - - -</td>
<td>brentuximab vedotin</td>
</tr>
<tr>
<td>- - - -</td>
<td>brentuximab vedotin + bendamustine</td>
</tr>
<tr>
<td>- - - -</td>
<td>brentuximab vedotin + nivolumab</td>
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### Subsequent therapy options<sup>b</sup>

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<tr>
<th>Therapy</th>
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<tr>
<td>C-MOPP</td>
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<td>GCD</td>
<td>gemcitabine, carboplatin, dexamethasone</td>
</tr>
<tr>
<td>GEMOX</td>
<td>gemcitabine, oxaliplatin</td>
</tr>
<tr>
<td>MINE</td>
<td>etoposide, ifosfamide, mesna, mitoxantrone</td>
</tr>
<tr>
<td>Mini-BEAM</td>
<td>carmustine, cytarabine, etoposide, melphalan</td>
</tr>
<tr>
<td>- - - -</td>
<td>bendamustine</td>
</tr>
<tr>
<td>- - - -</td>
<td>bendamustine, carboplatin, etoposide</td>
</tr>
<tr>
<td>- - - -</td>
<td>everolimus</td>
</tr>
<tr>
<td>- - - -</td>
<td>lenalidomide</td>
</tr>
<tr>
<td>- - - -</td>
<td>Checkpoint inhibitor therapy (nivolumab or pembrolizumab)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Most common regimens at NCCN Member institutions

<sup>b</sup> The selection of second-line chemotherapy regimens depends on the pattern of relapse and the agents previously used and prior toxicities (therapies are in alphabetical order. There is no preferred second- or subsequent-line option.
Appendix 3: Treatment Options for systemic ALCL

First-line Therapy

- brentuximab vedotin + CHP (cyclophosphamide, doxorubicin, prednisone)
- CHOEP (cyclophosphamide, doxorubicin, vincristine, etoposide, prednisone)
- CHOP (cyclophosphamide, doxorubicin, vincristine, prednisone)
- EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin)

Second- and Subsequent-Line Therapy

Transplant candidates

- **Single agents:**
  - Belinostat
  - Brentuximab vedotin (CD30+ AITL)
  - Romidepsin

- **Combination regimens:**
  - DHAP (dexamethasone, cisplatin, cytarabine)
  - DHAX (dexamethasone, cytarabine, cisplatin)
  - ESHAP (etoposide, methylprednisolone, cytarabine, cisplatin)
  - GDP (gemcitabine, dexamethasone, cisplatin)
  - GemOx (gemcitabine, oxaliplatin)
  - ICE (ifosfamide, carboplatin, etoposide)

Non-transplant candidates

- **Preferred:** Brentuximab vedotin (Adcetris)
- **Single agents/regimens:**
  - Alemtuzumab
  - Belinostat
  - Bendamustine
  - Bortezomib [category 2B]
  - Cyclophosphamide and/or etoposide
  - Cyclosporine
  - Gemcitabine
  - Lenalidomide
  - Pralatrexate
  - Radiation therapy
  - Romidepsin

- **Other Recommended Regimens:**
  - Bendamustine
  - Gemcitabine
  - Lenalidomide
  - Pralatrexate

*All therapies listed above are NCCN category 2A recommendations (lower quality evidence but uniform consensus among panel) unless otherwise indicated.

Cross References

<table>
<thead>
<tr>
<th>Medication</th>
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<th>Reference</th>
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<td>Beleodaq, belinostat</td>
<td>dru362</td>
<td>Medication Policy Manual</td>
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<td>Folotyn, pralatrexate</td>
<td>dru197</td>
<td>Medication Policy Manual</td>
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<tr>
<td>Istodax, romidepsin</td>
<td>dru198</td>
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<td>Opdivo, nivolumab</td>
<td>dru390</td>
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<tr>
<td>Keytruda, pembrolizumab</td>
<td>dru367</td>
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### Codes

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<td>Injection, brentuximab vedotin (Adcetris), 1 mg</td>
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### References


**Revision History**

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
</tbody>
</table>
| 1/22/2020     | - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
- The quantity limitations were rearranged by disease state rather than by dosing so they would parallel the order of the coverage criteria. Additionally, the authorization period section was also rearranged to better coincide with the quantity limitations. These changes were made to improve the efficiency of application of this policy. The overall intent of coverage was preserved. |
| 1/31/2019     | - The condition for at least one prior therapy for primary cutaneous ALCL (pcALCL) was removed (coverage is now allowed in the frontline setting).  
- Coverage was added for specific subtypes of CD30-expressing PTCLs based on a new FDA indication: sALCL, PTCL NOS, and AITL.  
- Quantity limits and authorization periods were added for the new indications for which coverage will be provided. |
| 6/15/2018     | - Added coverage criteria for front-line use in patients with high-risk, stage III or VI cHL when bleomycin is contraindicated.  
- Added coverage for primary cutaneous ALCL or CD30-expressing mycoses fungoides (new indications, rare diseases) and removed these conditions from the list of investigational uses.  
- Updated quantity and duration limits. |
| 7/14/2017     | Updated list of ‘investigational’ conditions (added AITL). |
| 9/9/2016      | No changes to coverage criteria with this annual update. |
| 11/11/2011    | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**  
**Policy No:** dru278  
**Topic:** Marqibo, vincristine sulfate liposome injection  
**Date of Origin:** September 24, 2012  
**Committee Approval Date:** January 20, 2021  
**Next Review Date:** January 2022  
**Effective Date:** April 1, 2021

**IMPORTANT REMINDER**  
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**  
Liposomal vincristine (Marqibo) is a liposomal form of generic vincristine sulfate. It is an intravenous chemotherapy used to treat a specific type of leukemia.

**PLEASE NOTE:** This policy and the coverage criteria below do not apply to generic vincristine sulfate. Generic vincristine sulfate does not require pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of liposomal vincristine (Marqibo) prior to coverage.

I. Continuation of therapy (COT): Liposomal vincristine (Marqibo) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Liposomal vincristine (Marqibo) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

A. A diagnosis of Philadelphia chromosome negative (Ph-negative) acute lymphoblastic leukemia (ALL).

AND

B. Disease has progressed after at least two prior regimens including at least one induction/maintenance and one relapsed/refractory regimen. (see Appendix 1)
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services does not consider liposomal vincristine (Marqibo) to be a self-administered medication.
   B. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Liposomal vincristine (Marqibo) is considered investigational when used for all other conditions, including but not limited to:
   A. Treatment-naïve acute lymphoblastic leukemia
   B. Non-Hodgkin lymphomas (NHLs), including diffuse large B-cell lymphoma (DLBCL) and mantle cell lymphoma (MCL)
   C. Hodgkin lymphoma
   D. Metastatic melanoma
   E. Pediatric cancers
   F. Retinoblastoma
   G. Ependymoma
   H. Wilms' Tumor
   I. Sarcoma, including rhabdomyosarcoma

Position Statement
- Liposomal vincristine (Marqibo) is generic vincristine sulfate, a vinca alkaloid chemotherapy agent, encapsulated in a fatty vehicle.
- Because liposomal vincristine (Marqibo) is a unique formulation of generic vincristine sulfate, there may be interest in using liposomal vincristine (Marqibo) in indications where generic vincristine sulfate has been shown to be effective. To date, there is a lack of evidence to determine the relative clinical benefit of liposomal vincristine (Marqibo) compared to generic vincristine sulfate.
- Like generic vincristine sulfate, liposomal vincristine (Marqibo) is contraindicated for intrathecal administration and in patients with demyelinating conditions. They are also both associated with serious adverse effects including neuropathy, myelosuppression, severe constipation and/or paralytic ileus, and tissue injury due to extravasation.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

Acute Lymphoblastic Leukemia

- Liposomal vincristine (Marqibo) has not been shown to provide additional clinical benefit compared to currently existing therapies used in the treatment of ALL.
- Liposomal vincristine (Marqibo) was approved based on one unpublished phase II, single-arm study in 65 patients with Ph-negative ALL that had progressed following two or more anti-leukemia therapies. [1]
  * The primary endpoint evaluated in this study was complete response plus complete response without full platelet recovery.
  * Ten (15.4%) subjects achieved the combined primary endpoint. Three (4.6%) subjects achieved complete response, while seven (10.8%) achieved complete response without full platelet recovery.
- One additional published phase II study evaluated overall response rate in 16 patients with refractory ALL. [2]
  * Treatment with liposomal vincristine (Marqibo) was the first salvage attempt in 11 patients, the second salvage attempt in 3 patients, and the third salvage attempt in 2 patients.
  * The overall response rate in the fourteen evaluable patients was 14% (1 complete responder; 1 partial responder).
- Liposomal vincristine (Marqibo) was studied in twenty adult patients with newly-diagnosed, B-cell ALL given as part of a hyper-CMAD regimen. This regimen was found to have good activity based on complete molecular response rates; however, the study only had a single arm (non-comparative) so it is not known if it offers any improvement in efficacy or safety over generic vincristine sulfate. [3]
- The National Comprehensive Cancer Network (NCCN) ALL guideline lists liposomal vincristine (Marqibo) among several category 2A recommendations for relapsed or refractory Ph-negative ALL. [4]

Non-Hodgkin Lymphoma (NHL)

- Liposomal vincristine (Marqibo) has not been shown to provide additional clinical benefit compared to currently existing therapies used in the treatment of NHLs.
- Two preliminary, early-phase studies were identified that evaluate liposomal vincristine (Marqibo) in refractory NHL, including large B-cell lymphoma and mantle cell lymphoma. The studies are small, uncontrolled, and evaluated tumor response. No clinical benefit has been demonstrated to date in these populations. [5,6]
- The NCCN does not list liposomal vincristine (Marqibo) among the treatment options for relapsed/refractory NHLs. [7]

Other Uses

- Liposomal vincristine (Marqibo) is currently being studied in a variety of other cancers including Hodgkin lymphoma, metastatic melanoma, non-Hodgkin’s lymphomas (including diffuse large B-cell lymphoma and mantle cell lymphoma), acute myeloid leukemia (AML), and several pediatric cancers. [8]
- Liposomal vincristine (Marqibo) is considered investigational in the abovementioned cancers due to the low level of available evidence in these settings.

Safety [1]
- The safety profile for liposomal vincristine (Marqibo) appears similar to generic vincristine sulfate.
- Boxed warnings for liposomal vincristine (Marqibo) include potential death with intrathecal use and potential overdose if confused with generic vincristine as the dosing recommendations are different.
- Additional warnings include neuropathy, myelosuppression, tumor lysis syndrome, severe constipation and/or paralytic ileus, severe fatigue, hepatotoxicity, embryofetal toxicity, and tissue injury due to extravasation.
- Liposomal vincristine (Marqibo) is contraindicated in patients with demyelinating conditions including Charcot-Marie-Tooth syndrome.
- The most commonly reported adverse reactions (incidence ≥ 30%) in clinical studies include constipation, nausea, pyrexia, fatigue, peripheral neuropathy, febrile neutropenia, diarrhea, anemia, decreased appetite, and insomnia.

Dosing and Administration [1]
- Liposomal vincristine (Marqibo) is administered at a dose of 2.25 mg/m² intravenously over 1 hour once every 7 days.
- Liposomal vincristine (Marqibo) may be fatal if administered intrathecally.
- Dosing recommendations for liposomal vincristine (Marqibo) are different from those for generic vincristine; therefore, the drug name and dose should be verified prior to preparation and administration.
- Liposomal vincristine (Marqibo) requires approximately 60 to 90 minutes of preparation time and must be done according to aseptic technique in a biological safety cabinet.
- Dosing modification is recommended for patients who experience liposomal vincristine (Marqibo)-related peripheral neuropathy.

Cross References
Blincyto, blinatumomab, Medication Policy Manual, Policy No. dru388

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<td>Injection, vincristine sulfate liposome (Marqibo), 1 mg</td>
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### Appendix 1: Therapies/Treatment Regimens for Philadelphia Chromosome Negative Acute Lymphoblastic Leukemia [Ph (-) ALL]

<table>
<thead>
<tr>
<th>Commonly used chemotherapy induction regimens (^a,^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>anthracycline (daunorubicin/doxorubicin)</td>
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<tr>
<td>+</td>
</tr>
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<td>generic vincristine sulfate</td>
</tr>
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<td>+</td>
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<tr>
<td>steroid (prednisone/dexamethasone)</td>
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<tr>
<td>asparaginase or rituximab</td>
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<tr>
<td>other (e.g. cyclophosphamide, cytarabine, 6-mercaptopurine)</td>
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<tr>
<th>Maintenance regimens</th>
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<tr>
<td>methotrexate + 6-mercaptopurine + generic vincristine sulfate/prednisone pulses</td>
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<tr>
<th>Relapsed/refractory regimens</th>
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<tr>
<td>blinatumomab (Blincyto)</td>
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<tr>
<td>inotuzumab ozogamicin (Besponsa) [for B-ALL]</td>
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<tr>
<td>tisagenlecleucel (Kymria) [for B-ALL]</td>
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<tr>
<td>clofarabine (Clolar)</td>
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<tr>
<td>cytarabine-containing regimens</td>
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<tr>
<td>alkylator combination regimens (e.g. etoposide + ifosfamide + mitoxantrone)</td>
</tr>
<tr>
<td>nelarabine (Arranon) [T-ALL only]</td>
</tr>
<tr>
<td>cyclophosphamide + generic vincristine sulfate + doxorubicin + dexamethasone + asparaginase + cytarabine/methotrexate (augmented hyper-CVAD)</td>
</tr>
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</table>

| liposomal vincristine (Marqibo)                         |

\(^a\) Systemic regimens, not including intrathecal (IT) CNS prophylaxis.

\(^b\) Variable, based on age and underlying patient characteristics.
References


7. NCCN Drugs and Biologics Compendium (NCCN Compendium). [cited 7/20/2020]; Available from: https://www.nccn.org/professionals/drug_compendium/content/


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>06/15/2020</td>
<td>Removed references to brand Rituxan from policy, to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>1/31/2018</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>9/21/2018</td>
<td>No changes with this annual update.</td>
</tr>
<tr>
<td>9/8/2017</td>
<td>The list of conditions considered investigational uses was updated.</td>
</tr>
<tr>
<td>8/12/2016</td>
<td>No changes with this annual update.</td>
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<tr>
<td>09/24/2012</td>
<td>New policy</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Topic: Zaltrap, ziv-aflibercept

Committee Approval Date: June 17, 2022

Effective Date: September 1, 2022

Policy No: dru279

Date of Origin: September 24, 2012

Next Review Date: June 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Zaltrap (ziv-aflibercept) is an intravenous (IV) medication, a Vascular Endothelial Growth Factor (VEGF) inhibitor, used in the treatment of colon cancer.
Policy/Criteria

Most contracts require pre-authorization approval of Zaltrap (ziv-aflibercept) prior to coverage.

I. Continuation of therapy (COT): Zaltrap (ziv-aflibercept) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Zaltrap (ziv-aflibercept) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A, B, and C below are met:

A. A diagnosis of metastatic colorectal cancer.

AND

B. Prior treatment with an Eloxatin (oxaliplatin)-containing regimen has been ineffective or not tolerated.

AND

C. Prior treatment with bevacizumab has been ineffective, contraindicated, or not tolerated.
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers Zaltrap (ziv-aflibercept) coverable only under the medical benefit (as a provider-administered medication).
   B. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Zaltrap (ziv-aflibercept) is considered investigational when used for all other conditions, including but not limited to:
   A. Gastroesophageal cancers.
   B. Kidney cancer.
   C. Leukemia.
   D. Lung cancer [small cell (SCLC), and non-small cell lung cancers (NSCLC)].
   E. Lymphoma.
   F. Ovarian cancer.
   G. Pancreatic cancer.
   H. Prostate cancer.
   I. Thyroid cancer.

Position Statement
- Zaltrap (ziv-aflibercept) is an intravenously infused medication that inhibits Vascular Endothelial Growth Factor (VEGF) thereby preventing the formation of new blood vessels and halting cell growth.
- The intent of this policy is to cover Zaltrap (ziv-aflibercept) for the indications, regimen, and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- Zaltrap (ziv-aflibercept) demonstrated an improvement in overall survival in metastatic colorectal cancer that was previously treated with an oxaliplatin-containing regimen.
- Zaltrap (ziv-aflibercept) was studied in combination with 5-fluorouracil, leucovorin and irinotecan (FOLFIRI).
- Bevacizumab (Avastin, biosimilars) is another VEGF inhibitor approved for the treatment of metastatic colorectal cancer in combination with 5-fluorouracil based chemotherapy.
- There is insufficient evidence to establish the comparative efficacy and safety of bevacizumab (Avastin, biosimilars) and Zaltrap (ziv-aflibercept).
- For our health plan members, bevacizumab (Avastin, biosimilars) is the preferred medication among the VEGF inhibitors used to treat metastatic colorectal cancer.
The safety and effectiveness of Zaltrap (ziv-aflibercept) have not been established in conditions other than metastatic colorectal cancer.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the 'medical necessity' assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy

Zaltrap (ziv-aflibercept) demonstrated improved overall survival in patients with metastatic colorectal cancer (CRC) previously treated with an oxaliplatin-containing regimen.

- A single, randomized controlled trial compared Zaltrap (ziv-aflibercept) in combination with 5-fluorouracil, leucovorin, and irinotecan (FOLFIRI) to FOLFIRI alone in the treatment of patients with metastatic colorectal cancer that was resistant to, or had progressed following, and oxaliplatin-containing regimen. [1,2]
  * The primary endpoint of the study was overall survival (OS). The addition of Zaltrap (ziv-aflibercept) to FOLFIRI improved OS by 1.44 months compared to FOLFIRI alone (12.06 versus 13.5 months, respectively; p = 0.0032).
  * Approximately 30% of randomized patients had received prior treatment with bevacizumab.

- The National Comprehensive Cancer Network (NCCN) Colon and Rectal Cancer treatment guidelines list Zaltrap (ziv-aflibercept) as an option after the first progression of metastatic colon or rectal cancer. NCCN recommends that Zaltrap (ziv-aflibercept) be used in combination with FOLFIRI or irinotecan. Bevacizumab is recommended as a preferred recommendation in this treatment setting. Additionally, bevacizumab has a recommendation for initial treatment of advanced or metastatic colorectal cancer in combination with FOLFOX or CapeOX. [3]
Use in Other Conditions \[4\]
Zaltrap (ziv-aflibercept) is currently being studied for treatment of a variety of cancers including: leukemia, lung cancer (small cell and non-small cell), lymphoma, ovarian cancer, pancreatic cancer, prostate cancer and thyroid cancer. There are currently no published studies supporting the safety or efficacy of Zaltrap (ziv-aflibercept) in these cancers. Preliminary results reported on clinicaltrials.gov show a lack of benefit with Zaltrap (ziv-aflibercept) in non-small cell lung cancer, ovarian cancer, and prostate cancer.

Safety \[1\]
- Zaltrap (ziv-aflibercept) has Boxed Warnings for risk of hemorrhage, gastrointestinal perforation, and compromised wound healing.
- Other serious adverse effects reported with Zaltrap (ziv-aflibercept) include fistula formation, hypertension, arterial thromboembolic events, proteinuria, neutropenia, diarrhea and dehydration, and reversible posterior leukoencephalopathy syndrome.

Dosing \[1\]
- The usual dose of Zaltrap (ziv-aflibercept) is 4 mg/kg given by intravenous infusion over 1 hour every 2 weeks.
- Zaltrap (ziv-aflibercept) is indicated for use in combination with 5-fluorouracil, leucovorin and irinotecan (FOLFIRI).

### Cross References

<table>
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<th>Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620</th>
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<td>Yervoy; ipilimumab, Medication Policy Manual No. dru238</td>
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<tr>
<td>HCPCS</td>
<td>J9400</td>
<td>Injection, Ziv-Aflibercept (Zaltrap), 1 mg</td>
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References


Revision History

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<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 6/17/2022     | There were no changes to the coverage criteria with this annual update.  
Note: Revisions were made to update to current standard policy language; however, there was no change to the intent of this policy. |
| 7/16/2021     | • No changes to coverage criteria with this annual review  
• The COT language was updated to the standard template language (no change to intent) |
| 7/22/2020     | Added continuation of therapy (COT) language (no change to policy intent). Removed references to brand Avastin to account for upcoming changes to biosimilars policy (dru620). |
| 7/24/2019     | Updated policy with standard language (no change to policy intent). |
| 11/16/2018    | No criteria changes with this annual update |
| 11/10/2017    | No criteria changes with this annual update |
| 8/12/2016     | No criteria changes with this annual update |

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

**Policy No:** dru281

**Date of Origin:** September 24, 2012

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

**Topic:** pertuzumab-containing medications:

- Perjeta, pertuzumab
- Phesgo, pertuzumab/trastuzumab/hyaluronidase

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Perjeta (pertuzumab) is a monoclonal antibody used in the treatment of HER2-positive breast cancer. It is given via intravenous infusion in combination with trastuzumab plus chemotherapy. Phesgo (pertuzumab/trastuzumab/hyaluronidase) is a combination of monoclonal antibodies used in the treatment of HER2-positive breast cancer that can be given subcutaneously under the skin.
Policy/Criteria

Most contracts require pre-authorization approval of pertuzumab-containing medications prior to coverage.

I. **Continuation of therapy (COT):** Pertuzumab-containing medications (Perjeta, Phesgo) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Pertuzumab-containing medications (Perjeta, Phesgo) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criterion A or B below is met:

   A. **Metastatic Breast Cancer:** A diagnosis of HER2-positive metastatic breast cancer when:
      1. Pertuzumab-containing medications (Perjeta, Phesgo) are used in one of the two treatment settings described below:
         a. Patient has had no prior therapy for HER2-positive metastatic breast cancer.

   OR
b. Patient has received one prior therapy for metastatic breast cancer that included trastuzumab plus chemotherapy in the absence of Perjeta (pertuzumab).

AND

2. **Perjeta Only:** Perjeta (pertuzumab) is used concomitantly with trastuzumab and chemotherapy (e.g., docetaxel).

OR

B. **Neoadjuvant (pre-operative) Use in Breast Cancer:** A diagnosis of HER2-positive locally advanced, inflammatory, or early-stage breast cancer when criteria 1, 2, and 3 below are met:

1. Pertuzumab-containing medications (Perjeta, Phesgo) are used preoperatively prior to resection of the breast tumor (neoadjuvant setting).

AND

2. Pertuzumab-containing medications (Perjeta, Phesgo) are used concomitantly with chemotherapy (e.g., docetaxel).

AND

3. **Perjeta Only:** Perjeta (pertuzumab) is also used concomitantly with trastuzumab.

OR

C. **Adjuvant (post-operative) Use in Breast Cancer:** A diagnosis of HER2-positive locally advanced, inflammatory, or early-stage breast cancer when criteria 1 through 6 below are met:

1. Pertuzumab-containing medications (Perjeta, Phesgo) are used post-operatively after resection of the breast tumor (adjuvant setting).

AND

2. The patient is node-positive (based on surgical pathology report or attestation).

AND

3. The patient did not receive neoadjuvant chemotherapy.

AND

4. Patient has had no prior HER2-directed chemotherapy [such as trastuzumab, Perjeta (pertuzumab), or Kadcyla (ado-trastuzumab emtansine)].

AND

5. Pertuzumab-containing medications (Perjeta, Phesgo) are used concomitantly with chemotherapy (e.g., docetaxel).

AND

6. **Perjeta Only:** Perjeta (pertuzumab) is also used concomitantly with trastuzumab.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers pertuzumab-containing medications (Perjeta, Phesgo) coverable only under the medical benefit (as a provider-administered medication).

B. When preauthorization is approved, pertuzumab-containing medications (Perjeta, Phesgo) will be approved as follows:

1. **Metastatic setting:**
   a. **Perjeta (pertuzumab):** Initial dose of 840 mg, followed by subsequent doses of 420 mg every 3 weeks until disease progression. Perjeta (pertuzumab) should be discontinued if trastuzumab is discontinued.
   b. **Phesgo (pertuzumab/trastuzumab/hyaluronidase):** Initial dose of 1,200 mg pertuzumab, 600 mg trastuzumab, and 30,000 units hyaluronidase followed every 3 weeks by subsequent doses of 600 mg pertuzumab, 600 mg trastuzumab, and 20,000 units hyaluronidase until disease progression.

2. **Neoadjuvant setting:**
   a. **Perjeta (pertuzumab):** Initial dose of 840 mg, followed by 420 mg every 3 weeks for up to six doses prior to surgery. Perjeta (pertuzumab) should be discontinued if trastuzumab is discontinued.
   b. **Phesgo (pertuzumab/trastuzumab/hyaluronidase):** Initial dose of 1,200 mg pertuzumab, 600 mg trastuzumab, and 30,000 units hyaluronidase followed every 3 weeks by subsequent doses of 600 mg pertuzumab, 600 mg trastuzumab, and 20,000 units hyaluronidase preoperatively for 3 to 6 cycles.

3. **Adjuvant setting:**
   a. **Perjeta (pertuzumab):** Initial dose of 840 mg, followed by 420 mg every 3 weeks for up to 18 doses or until disease progression.
   b. **Phesgo (pertuzumab/trastuzumab/hyaluronidase):** Initial dose of 1,200 mg pertuzumab, 600 mg trastuzumab, and 30,000 units hyaluronidase followed every 3 weeks by subsequent doses of 600 mg pertuzumab, 600 mg trastuzumab, and 20,000 units hyaluronidase postoperatively for a total of 1 year (up to 18 cycles) or until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.
IV. Pertuzumab-containing medications (Perjeta, Phesgo) are considered not medically necessary when used for node-negative HER2-positive breast cancer treatment in the adjuvant (after surgical resection) setting.

V. Pertuzumab-containing medications (Perjeta, Phesgo) are considered investigational when:
   A. It is not administered in conjunction with trastuzumab.
   B. Used beyond the second-line treatment setting for metastatic breast cancer.
   C. Used in the adjuvant setting, after the patient has received neoadjuvant therapy.
   D. Gastric cancer.
   E. HER2-negative breast cancer.
   F. Ovarian cancer.
   G. Colorectal cancer
   H. Non-small cell lung cancer

Position Statement
- Perjeta (pertuzumab), a monoclonal antibody that prevents growth of cancer cells via its blockade of HER2 receptors, is approved for the treatment of HER2-positive metastatic breast cancer (mBC); as a neoadjuvant therapy (used prior to surgical resection of a tumor) for locally advanced, inflammatory, or early-stage HER2-positive breast cancer; and as an adjuvant therapy (used after surgical resection of a tumor) for non-metastatic, invasive, HER2-positive breast cancer at high risk of recurrence.

- Perjeta (pertuzumab) binds to a different area on HER2 receptors than trastuzumab. In some breast cancer settings, the two medications used in combination may provide greater antitumor activity than trastuzumab alone.

- Phesgo (pertuzumab/trastuzumab/hyaluronidase) is a fixed dose combination of pertuzumab and trastuzumab with hyaluronidase, an endoglycosidase, combined in a formulation that can be given subcutaneously.

- The intent of this policy is to cover pertuzumab-containing medications (Perjeta, Phesgo) for the indications, regimen, and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

* Effective is defined by have a known health benefit and/or an additional health benefit relative to available treatment alternatives.

* Where there is lack of proven additional benefit for Perjeta (pertuzumab) relative to alternatives, and/or a lack of a demonstrated health outcome (such as overall survival), use of Perjeta (pertuzumab) is not coverable (“not medically necessary” or “investigational”).

- It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.
**Metastatic breast cancer (mBC)**

- The combination of Perjeta (pertuzumab), trastuzumab and docetaxel has been shown to significantly improve median overall survival (OS) as a first-line therapy for HER2-positive mBC relative to trastuzumab and docetaxel alone.

- The evidence for Perjeta (pertuzumab) in the second-line HER2-positive mBC setting is of poor quality. However, as it is rapidly becoming the standard of care, coverage is provided in the second-line setting when Perjeta (pertuzumab) was not used with trastuzumab plus chemotherapy in the first-line mBC setting.

**Non-metastatic breast cancer (locally advanced, inflammatory, or early-stage)**

- Evidence for Perjeta (pertuzumab) in the neoadjuvant setting (when given for 3 to 6 doses prior to surgical resection of the breast tumor) is based on a surrogate endpoint (the absence of invasive cancer in the breast and lymph nodes). It is not known if it improves survival, or any other clinically relevant endpoint, when used in this setting.

- The use of Perjeta (pertuzumab) as an add-on to adjuvant chemotherapy plus trastuzumab was FDA-approved based on the results of the APHINITY trial in patients who received no prior chemotherapy, such as neoadjuvant chemotherapy. A net clinical benefit with this add-on therapy has not yet been demonstrated and there is an established, safe, and effective alternative therapy (chemotherapy plus one year of adjuvant trastuzumab) that has been shown to improve OS in this population.

  * In patients who did not receive neoadjuvant therapy, the addition of Perjeta (pertuzumab) to a standard adjuvant regimen results in a nominal improvement in invasive disease-free survival (iDFS) relative to standard therapy (iDFS of 94.1% and 93.2% at 3 years, respectively). Though statistically different, this difference is not likely clinically relevant; iDFS is a surrogate endpoint which has not been shown to reliably predict clinically relevant outcomes such as a decrease in metastatic disease recurrence or improved OS.

  * To date there is no evidence demonstrating an improvement in OS when Perjeta (pertuzumab) is added to the standard adjuvant regimen.

  * The reporting of preliminary results at 3 years in an early-stage BC population is earlier than the typical 5-year standard. Use of preliminary evidence leads to uncertainty when estimating the net health benefit of this regimen. This can lead to over-estimation of benefit and underestimation of harms.

  * Because the results from this trial are underwhelming, there has been significant focus on subgroup analyses, particularly related to the node-positive subpopulation.

    - The hazard ratio in this population suggests a greater likelihood of improvement in iDFS with the addition of Perjeta (pertuzumab) to a standard adjuvant regimen; however, the improvement in iDFS is small and is likely an overestimate as there was a change in study protocol which enriched the population with node-positive patients late in the trial when it was discovered that there was no benefit in the node-negative subgroup.
• Additionally, a standard statistical test used to detect differences between the node-negative and node-positive subgroups found that there was no difference in relative treatment effect between the two subgroups.

• Other subgroup analyses suggested no benefit was associated with treatment in other important populations, such as in pre-menopausal women.

• Guidelines do not consistently recommend the use of adjuvant Perjeta (pertuzumab) in node-negative patients. Therefore, the use of adjuvant Perjeta (pertuzumab) in node-negative patients is considered not medically necessary.

* Women who received neoadjuvant treatment with Perjeta (pertuzumab) or other neoadjuvant chemotherapy prior to surgery were excluded from this trial; therefore, it is not known if Perjeta (pertuzumab) in the adjuvant setting is beneficial in this population.

* Patients who received neoadjuvant therapy were not included in the APHINITY trial; there is no evidence to support continued Perjeta (pertuzumab) therapy in patients who received neoadjuvant treatment.

- NCCN lists the following recommendations:

  * The addition of Perjeta (pertuzumab) to a standard adjuvant regimen is a category 2A recommendation (independent of node-negative vs. node-positive). The use of trastuzumab alone is listed as a category 1 (highest level) recommendation. [1]

  * For patients who received neoadjuvant chemotherapy and are found to have residual disease, adjuvant Kadcyla (ado-trastuzumab emtansine) is a category 1 recommendation.

- Although NCCN does not differentiate adjuvant therapy recommendations for node-negative versus node-positive patients, ASCO guidelines state the APHINITY trial showed no clinically meaningful benefit in node-negative patients.

- Perjeta (pertuzumab) has not been shown to be effective when used alone (i.e., not in combination with trastuzumab) or in the treatment of other types of cancer.

- Perjeta (pertuzumab) has been shown to be safe and effective when dosed as follows: an initial dose of 840 mg via intravenous infusion, followed by 420 mg every three weeks.

- The safety of administering more than six doses (cycles) of Perjeta (pertuzumab) in early breast cancer (neoadjuvant setting) has not been established.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as
the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

**Clinical Efficacy**

**HER2-POSITIVE METASTATIC BREAST CANCER**

- There is fair confidence in the evidence that the addition of Perjeta (pertuzumab) to a standard trastuzumab-containing regimen improves median overall survival (OS) in HER2-positive metastatic breast cancer (BC). [2]

  * A single, phase III pivotal trial compared Perjeta (pertuzumab) plus trastuzumab plus docetaxel with trastuzumab plus docetaxel alone in the HER2-positive metastatic BC setting.

  - The trial enrolled patients who had no prior chemotherapy or trastuzumab in the metastatic setting. Prior trastuzumab was allowed in the adjuvant or neoadjuvant setting if 12 months had passed between completion of adjuvant/neoadjuvant therapy and diagnosis of metastatic BC.

  - In the initial efficacy analysis, median PFS was prolonged by approximately 6 months in the Perjeta (pertuzumab) treatment arm. [3]

  - In a final survival analysis of this trial, a significant improvement in median OS was demonstrated. Subjects in the Perjeta (pertuzumab) arm had a median OS of 56.5 months versus 40.8 months in the control group [hazard ratio of 0.68; 95% CI (0.56, 0.84); p < 0.001]. [4]

  * The evidence for Perjeta (pertuzumab) in patients who have had progression while receiving prior HER2-blocking therapy is of poor quality. [5]

  - An uncontrolled study trial evaluated the combination of Perjeta (pertuzumab) and trastuzumab in patients who had progression of their HER2-positive metastatic BC on prior trastuzumab-based therapy.

  - The evidence from this trial is of poor quality because there was no comparator arm or blinding employed in the study. The effects of bias, confounding, and chance cannot be ruled out.

  - The study evaluated overall response rates (ORR) in 58 patients.

  - The authors reported a 24% ORR and a median PFS of 5.5 months.
NON-METASTATIC (EARLY BREAST CANCER), PRIOR TO SURGICAL RESECTION (NEOADJUVANT SETTING)

- The evidence of efficacy for Perjeta (pertuzumab) in the neoadjuvant setting for locally advanced, inflammatory, or early-stage BC is of low quality. [6 7]

  * An open-label trial evaluated pathological complete response (pCR) rates for the combination of Perjeta (pertuzumab)/trastuzumab docetaxel versus trastuzumab/docetaxel alone as neoadjuvant therapy for women with early-stage HER2-positive BC.

  * Therapy was given preoperatively for 3 to 6 cycles prior to tumor resection [Perjeta (pertuzumab) was administered every 3 weeks for 3 to 6 doses].

  * Pathological complete response is defined as the absence of invasive cancer in the breast and lymph nodes. It is unknown if pCR is an accurate predictor of OS in BC.

  * The effect of neoadjuvant Perjeta (pertuzumab) on OS has not been evaluated.

ADJUVANT (POST SURGICAL RESECTION) – NON-METASTATIC HER2-POSITIVE BREAST CANCER SETTING

- A multicenter, randomized, double-blind, placebo-controlled trial (N=4,805) compared Perjeta (pertuzumab) with placebo each added to standard adjuvant chemotherapy plus 1 year of treatment with trastuzumab in patients with HER2-positive early breast cancer. [8]

  * The 3-year rate of invasive-disease-free survival (iDFS) was 94.1% in the Perjeta (pertuzumab) group and 93.2% in the placebo group [hazard ratio 0.81; 95% CI (0.66, 1.0); p=0.045). Although statistically different, this very small difference is not likely clinically relevant.

  * iDFS is a surrogate endpoint that has not been shown to correlate with a clinically meaningful outcome such as decreased metastatic recurrence or improved overall survival.

  * No overall survival difference has been demonstrated between groups to date.

  * A 3-year follow-up in this population is considered preliminary. A 5-year follow up is a more typical timeframe. Use of preliminary results leads to uncertainty in the net clinical benefit (potential for harms relative to potential for benefit) assessment.

  * Subset analyses in patients with either node-positive disease, or hormone receptor-negative disease appears to show a small benefit in iDFS in the Perjeta (pertuzumab) versus placebo groups; however, the potential for benefit is very small and is likely an overestimate due to enrichment of the study population with node-positive patients. A protocol amendment to stop enrolling node-negative patients was made late in the study because it was noted that this subpopulation was not experiencing any benefit with Perjeta (pertuzumab).

- Overall, the addition of Perjeta (pertuzumab) to a standard adjuvant treatment regimen has not been shown to improve any clinically relevant outcome, may increase the likelihood of side effects to adjuvant therapy, and is associated with a higher cost of care.
USE IN OTHER CONDITIONS

- Early phase 2 trials that studied pertuzumab (Perjeta, previously referred to as Omnitarg) showed that it had only limited activity as a single agent in ovarian, breast, and prostate cancers. [9] It is, therefore, unlikely to be effective when used alone.

- A recently published phase II trial found no benefit in adding Perjeta (pertuzumab) to standard chemotherapy in women with recurrent ovarian cancer. [10]

- A small (n = 30), early phase pharmacokinetic and safety study was conducted with Perjeta (pertuzumab) in patients with advanced gastric or gastro-esophageal junction cancer. A larger, phase 3 study is planned to evaluate the safety and efficacy of Perjeta (pertuzumab) in this condition. [11]

- A small phase 2a basket trial evaluated pertuzumab in HER2-amplified metastatic colorectal cancer. Although 32% of patients had a response (ORR) on pertuzumab plus trastuzumab therapy, there is insufficient evidence to establish the benefit of this combination therapy for colon cancer. While these preliminary results are promising, there is no evidence of benefit on clinically meaningful outcomes, such as increased overall survival. [12]

- The evidence for pertuzumab in HER2-positive non-small cell lung cancer is limited to one phase 2 trial. No benefit was observed with pertuzumab treatment on the primary endpoints of complete response and partial response. Additional trials are ongoing. [13]

GUIDELINES

- National Comprehensive Cancer Network (NCCN) BC guideline recommendations for pertuzumab in HER2-positive BC: [1]

  * **Metastatic setting:** The combination of Perjeta (pertuzumab) plus trastuzumab plus docetaxel is listed as a category 1 recommendation for the first-line treatment of HER2-positive metastatic BC. The regimen gets a category 2A recommendation if paclitaxel is substituted for docetaxel. The guideline also states that Perjeta (pertuzumab) may be given in combination with trastuzumab in the second-line metastatic treatment setting if patients were previously treated in the first-line metastatic setting with trastuzumab plus chemotherapy in the absence of Perjeta (pertuzumab) [category 2A recommendation].

  * **Neoadjuvant setting:** The use of Perjeta (pertuzumab) in the neoadjuvant setting is listed as a category 2A recommendation when used prior to surgery for early BC when administered concomitantly with a taxane plus trastuzumab.

  * **Adjuvant setting:** The preferred, category 1 recommended adjuvant regimen for non-metastatic, invasive HER2-positive BC is adjunctive chemotherapy followed by paclitaxel plus trastuzumab. The addition of Perjeta (pertuzumab) to a standard adjuvant regimen is listed as a category 2A recommendation. For patients with residual disease after neoadjuvant therapy, adjuvant therapy with ado-trastuzumab emtansine is a category 1 recommendation.
The American Society of Clinical Oncology (ASCO) breast cancer guideline states that one year of adjuvant Perjeta (pertuzumab) may be added to trastuzumab-based combination chemotherapy for patients with early-stage, HER2-positive breast cancer (moderate strength recommendation). Qualifying statements include:[14]

* The recommendation is based on a modest disease-free benefit in patients with node-positive disease.
* No benefit was observed in node-negative patients, and no survival benefit has been shown to date.
* There is no data to guide the length of Perjeta (pertuzumab) therapy in patients with a complete pathologic response to neoadjuvant therapy.

The National Institute for Health and Care Excellence (NICE) technical appraisal concluded that there is uncertainty regarding the potential for benefit with Perjeta (pertuzumab) when used in the adjuvant treatment of early-stage HER2-positive breast cancer. Reasons for the uncertainty include:[15]

* Improvement in invasive disease-free survival is marginal and there is uncertainty in the estimate of effect.
* There is uncertainty as to whether the invasive disease-free survival endpoint reliably predicts metastatic recurrence or overall survival benefit. A related surrogate endpoint, pathological complete response, was not associated with improved OS over the long term in a previous study in early breast cancer at high risk of recurrence.
* The overall survival data are immature, and there is currently no apparent difference between treatment groups for this endpoint.
* The evidence for increased evidence in the node-positive and hormone receptor-negative subgroups is not convincing because of the non-significant test for interaction in each of these subgroups (implies that there is no evidence that the hazard ratio comparing Perjeta (pertuzumab) versus placebo showed a difference in the subgroups).

**Safety**[7]

- Pertuzumab-containing medications (Perjeta, Phesgo) carry a Boxed Warning for embryo-fetal death and birth defects and is listed as a pregnancy Category D. They also carry a Boxed Warning describing the risk of clinical cardiac failure including left ventricular dysfunction and congestive heart failure.

- Common adverse effects when Perjeta (pertuzumab) is combined with trastuzumab plus docetaxel (≥ 30% incidence) include diarrhea, alopecia, neutropenia, nausea, fatigue, rash, and peripheral neuropathy.

- Pertuzumab-containing medications (Perjeta, Phesgo) should be withheld for a left ventricular ejection fraction (LVEF) of < 40% or for a LVEF of 40% to 45% with a 10% absolute decrease below pretreatment values.
Dosing

- The initial dose of Perjeta (pertuzumab) is 840 mg administered as a 60-minute infusion. This is followed every 3 weeks thereafter with 420 mg doses administered over 30 to 60 minutes.

- The initial dose of Phesgo (pertuzumab/trastuzumab/hyaluronidase) is 1,200 mg pertuzumab, 600 mg trastuzumab, and 30,000 units hyaluronidase administered subcutaneously over approximately 8 minutes, followed every 3 weeks by a dose of 600 mg pertuzumab, 600 mg trastuzumab, and 20,000 units hyaluronidase administered subcutaneously over approximately 5 minutes.

- In the neoadjuvant HER2-positive BC setting, pertuzumab-containing medications (Perjeta, Phesgo) are given preoperatively every 3 weeks for 3 to 6 doses. The safety of pertuzumab-containing medications (Perjeta, Phesgo) given for more than 6 doses for early BC has not been established.

- When used in the adjuvant setting (after surgical resection), pertuzumab-containing medications (Perjeta, Phesgo) are given every three weeks for a total of one year (up to 18 cycles). It should not be continued if trastuzumab is stopped. [Note: Use in this setting is considered ‘not medically necessary’ based on health plan contracts]

Cross References

<table>
<thead>
<tr>
<th>BlueCross BlueShield Association Medical Policy, 5.01.20 - Pertuzumab for Treatment of Malignancies [November 2021]</th>
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<tr>
<td>Tykerb, lapatinib, Medication Policy Manual, Policy No. dru145</td>
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<tr>
<td>Kadcyla, ado-trastuzumab emtansine, Medication Policy Manual, Policy No. dru298</td>
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<tr>
<td>Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620</td>
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Codes

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<th>Description</th>
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<td>HCPCS J9306</td>
<td>Injection, pertuzumab (Perjeta), 1 mg</td>
</tr>
<tr>
<td>HCPCS J9316</td>
<td>Injection, pertuzumab, trastuzumab, and hyaluronidase-zzxf (Phesgo), per 10 mg</td>
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References


Revision History

<table>
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<tr>
<th>Revision Date</th>
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<tr>
<td>6/17/2022</td>
<td>Added colorectal cancer and non-small cell lung cancer as investigational uses. No criteria changes with this annual update.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>1/20/2021</td>
<td>Added Phesgo (pertuzumab/trastuzumab/hyaluronidase) to policy.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Reworded references to trastuzumab to be agnostic to brand name to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
</tbody>
</table>
| 4/22/2020     | • Added coverage criteria for adjuvant use for specific patients (node-positive, did not receive prior neoadjuvant therapy, and no prior HER2-directed chemotherapy).  
• Added COT criteria. |
| 7/24/2019     | Updated policy with standard language, including clarifying the Authorization Period to state ‘until disease progression’ (no change to policy intent) when used in the metastatic disease setting. |
| 8/17/2018     | • Adjuvant use of pertuzumab was moved from ‘investigational’ to ‘not medically necessary’.  
• The “Administration, Quantity Limitations, and Authorization Period” section was updated say that pertuzumab should be discontinued when trastuzumab is discontinued (supports investigational position that pertuzumab is not covered as the sole HER2-blocking therapy). |
| 10/13/2017    | No criteria changes with this annual update |
| 5/13/2016     | For coverage of pertuzumab in the metastatic setting, made the clarification that the patient has had no prior treatment for HER2-positive metastatic BC. The prior criterion (I.A.2.a) stated, “Patient has had no prior therapy for metastatic breast cancer”. |

Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Policy No:** dru298  
**Date of Origin:** May 16, 2013  
**Committee Approval Date:** June 17, 2022  
**Next Review Date:** June 2023  
**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Kadcyla (ado-trastuzumab emtansine) is an antibody-drug conjugate (ADC) that is used to treat metastatic, HER2-positive breast cancer when the disease has progressed after standard therapy. It works by blocking HER2 receptors while delivering cytotoxic chemotherapy medication directly to cancer cells. It is administered as an intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of Kadcyla (ado-trastuzumab emtansine) prior to coverage.

I. Continuation of therapy (COT): Kadcyla (ado-trastuzumab emtansine) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Kadcyla (ado-trastuzumab emtansine) may be considered medically necessary in patients with breast cancer when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

A. A diagnosis of HER2-positive breast cancer.

AND

B. Use in one of the following treatment settings (criterion 1 or 2):
   1. Metastatic disease: When there is progression of disease after treatment with trastuzumab and a taxane (docetaxel or paclitaxel), when given either separately or in combination.

OR
2. **Non-metastatic disease (early disease)** when all of the following criteria are met (a, b, and c):
   a. There is documented residual invasive disease (tumor or lymph nodes) after surgery [Kadcyla (ado-trastuzumab emtansine) will be used in the ADJUVANT setting].

   **AND**

   b. At least six cycles (16 weeks) of neoadjuvant chemotherapy were administered prior to surgery.

   **AND**

   c. Neoadjuvant therapy (prior to surgery) included both of the following (i and ii):
      i. At least nine weeks of taxane therapy.

      **AND**

      ii. At least nine weeks of trastuzumab therapy.

III. **Administration, Quantity Limitations, and Authorization Period**

   A. Regence Pharmacy Services considers Kadcyla (ado-trastuzumab emtansine) coverable only under the medical benefit (as a provider-administered medication).

   B. When pre-authorization is approved, Kadcyla (ado-trastuzumab emtansine) will be authorized as follows:

   1. **Metastatic disease:** Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement (including that there is no disease progression).

   **OR**

   2. **Non-metastatic disease (early disease):** until disease progression, or up to a maximum of 14 cycles. No additional doses will be authorized.

IV. Kadcyla (ado-trastuzumab emtansine) is considered investigational when used in combination with Perjeta (pertuzumab).

V. Kadcyla (ado-trastuzumab emtansine) is considered investigational when used for all other conditions, including but not limited to:

   A. HER2-positive breast cancer when trastuzumab has not been part of the prior treatment history.

   B. HER2-negative breast cancer.

   C. Gastric cancer.

   D. HER2 mutations in non-small cell lung cancer.
Position Statement

- Kadcyla (ado-trastuzumab emtansine) is an antibody-drug conjugate that works via its blockade of HER2 receptors and delivery of cytotoxic chemotherapy to cancer cells.

- The intent of this policy is to cover Kadcyla (ado-trastuzumab emtansine) for the indications and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.

* It was initially approved for use in the treatment of HER2-positive metastatic breast cancer (BC) in patients who have received a prior trastuzumab and taxane-based regimen for their metastatic disease, or when disease recurs during or within six months of completing adjuvant therapy with a trastuzumab and taxane-based regimen.

* Subsequently, it was approved for use in HER2-positive non-metastatic (early) BC, as adjuvant therapy for residual invasive disease, after trastuzumab and taxane-based neoadjuvant therapy.

- Kadcyla (ado-trastuzumab emtansine) has only been evaluated when used as monotherapy. It should not be used in combination with trastuzumab, because it is duplication of therapy, or Perjeta (pertuzumab), where its safety and effectiveness have not been evaluated.

- Additionally, the safety and effectiveness of Kadcyla (ado-trastuzumab emtansine) have not been evaluated in other types of cancer.

- The most common side effects reported with Kadcyla (ado-trastuzumab emtansine) include fatigue, nausea, thrombocytopenia, headache, elevated liver enzymes, neuropathy, and constipation. Platelet count should be evaluated prior to each dose.

- Kadcyla (ado-trastuzumab emtansine) is given in a dose of 3.6 mg/kg via intravenous infusion over 90 minutes every 3 weeks until disease progression for metastatic disease and for up to 14 total cycles for residual disease in early BC.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the 'medical necessity' assessment, as described above.

**Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.**

**Clinical Efficacy**

**METASTATIC BREAST CANCER**

There is moderate certainty in the evidence that Kadcyla (ado-trastuzumab emtansine) improves survival in patients with HER2-positive metastatic breast cancer (mBC) relative to Tykerb (lapatinib) plus capecitabine.

- A large randomized, open-label, controlled trial compared Kadcyla (ado-trastuzumab emtansine) with Tykerb (lapatinib) plus capecitabine in patients with HER2-positive mBC. [1]
  * The study enrolled patients who had progression of their disease after therapy with trastuzumab and a taxane, either in the metastatic or adjuvant setting.
  * Progression-free survival (PFS) and overall survival were evaluated as co-primary endpoints.
  * There was a 6-month improvement in overall survival (OS) in favor of Kadcyla (ado-trastuzumab emtansine) based on an interim survival analysis. The study was stopped after statistical testing determined that a significant OS advantage would be maintained throughout the full planned duration of the study.
  * Any future survival analyses will be confounded because subjects were allowed to cross over to Kadcyla (ado-trastuzumab emtansine) after the interim survival analysis.

- Kadcyla (ado-trastuzumab emtansine) has not been compared with any other medication regimens commonly used in the second- and third-line HER2-positive mBC setting.

- There is a small (n = 137), proof-of-concept trial comparing Kadcyla (ado-trastuzumab emtansine) with trastuzumab plus docetaxel in the first-line (no prior trastuzumab) HER2-positive mBC setting. [2,3]
  * There is low confidence in the evidence from this study due to lack of detail regarding the proportion of subjects who withdrew from the comparator arm, the use of an endpoint (progression-free survival) that has not been correlated with clinically relevant outcomes, and lack of blinding.
  * Larger, well-controlled studies are needed to establish its safety and effectiveness in this treatment setting.

- There are no published clinical trials evaluating the combination of Kadcyla (ado-trastuzumab emtansine) and Perjeta (pertuzumab).

- The National Comprehensive Cancer Network (NCCN) breast cancer guideline recommends Kadcyla (ado-trastuzumab emtansine) for patients with HER2-positive mBC that have had prior exposure to trastuzumab-based regimens. It also has a recommendation as an adjuvant therapy in the resectable disease setting. [4]
NON-METASTATIC (EARLY) BREAST CANCER

There is low certainty in the evidence that adjuvant Kadcyla (ado-trastuzumab emtansine) improves survival in patients with HER2-positive non-metastatic BC relative to trastuzumab.

- A large randomized, open-label controlled trial compared Kadcyla (ado-trastuzumab emtansine) versus trastuzumab as adjuvant therapy in patients with HER2-positive non-metastatic BC and residual invasive disease after neoadjuvant therapy. [5]
  * The study enrolled patients who had residual invasive disease in the breast or axilla at surgery after neoadjuvant therapy with a taxane (with or without anthracycline) and trastuzumab.
  * All patients had at least 16 weeks of neoadjuvant therapy prior to surgery and at least nine weeks (three cycles) each of a taxane and trastuzumab.
  * Patients received a maximum of 14 cycles of Kadcyla (ado-trastuzumab emtansine).
  * Invasive disease-free survival (iDFS) was the primary endpoint. Overall survival was a secondary endpoint.
  * There was a reported invasive disease-free survival (iDFS) advantage with Kadcyla (ado-trastuzumab emtansine) [at 3 years, 88% vs. 77% with trastuzumab].
  * iDFS is a surrogate endpoint that has not been found to accurately predict benefit with regard to any clinically relevant outcome (e.g., overall survival (OS), quality or life). The effect of Kadcyla (ado-trastuzumab emtansine) on OS in this setting is unknown at this time.

- The NCCN breast cancer guideline recommends Kadcyla (ado-trastuzumab emtansine) for locally advanced, invasive, HER2-positive breast cancer after preoperative systemic therapy when residual disease is present. [4]

Use of Kadcyla (ado-trastuzumab emtansine) in other conditions

- Kadcyla (ado-trastuzumab emtansine) is also being studied in gastric cancer; however, there is insufficient evidence evaluating its efficacy in this condition. [6]
- Kadcyla (ado-trastuzumab emtansine) has not been studied in HER2-negative BC.
- Kadcyla (ado-trastuzumab emtansine) is also being studied in ERBB2 (also known as HER2) mutations; however, there is insufficient evidence evaluating its efficacy in this condition. [4]
**Safety** [7]
- Commonly (incidence > 25%) adverse effects reported with Kadcyla (ado-trastuzumab emtansine) include fatigue, nausea, musculoskeletal pain, thrombocytopenia, headache, increased transaminases, and constipation.
- Kadcyla (ado-trastuzumab emtansine) labeling carries boxed warnings for hepatotoxicity, reduction in left ventricular ejection fraction (LVEF), and potential for fetal harm.
- Package labeling also carries warnings for pulmonary toxicity, hemorrhage, and peripheral neuropathy. Platelets should be monitored prior to each dose due to the potential for thrombocytopenia.

**Dosing and administration** [7]
- Kadcyla (ado-trastuzumab emtansine) is given in a dose of 3.6 mg/kg given intravenously over 90 minutes every 3 weeks (until progression in the metastatic setting or for up to 14 cycles as an adjuvant therapy for residual disease).
- Dose modification may be necessary for hepatotoxicity, decrease in LVEF, thrombocytopenia, pulmonary toxicity, or peripheral neuropathy.

### Cross References

| BlueCross BlueShield Association Medical Policy, 5.01.22 - Ado-Trastuzumab Emtansine (Trastuzumab-DM1) for Treatment of HER2-Positive Malignancies [August 2021] |
| Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620 |
| Enhertu, fam-trastuzumab deruxtecan-nxki, Medication Policy Manual, Policy No. dru623 |
| Nerlynx, neratinib, Medication Policy Manual, Policy No. dru520 |
| pertuzumab-containing medications, Medication Policy Manual, Policy No. dru281 |
| Tykerb, lapatinib, Medication Policy Manual, Policy No. dru145 |

### Codes

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<td>HCPCS</td>
<td>J9354</td>
<td>Injection, ado-trastuzumab emtansine (Kadcyla), 1 mg</td>
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References


**Revision History**

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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>6/17/2022</td>
<td>There were no changes to the coverage criteria with this annual update. <em>Note: Revisions were made to update to current standard policy language; however, there was no change to the intent of this policy.</em></td>
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<tr>
<td>7/16/2021</td>
<td>Updated continuation of therapy criteria. Added HER2 mutations in non-small cell lung cancer as an investigational use. No other changes with this annual update.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Added continuation of therapy (COT) criteria. Removed references to brand Herceptin to account for upcoming changes to biosimilar policy (dru620). No other changes with this annual update.</td>
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<tr>
<td>7/24/2019</td>
<td>Add coverage criteria for non-metastatic breast cancer, for use in the adjuvant setting, based on new evidence and indication (effective 8/15/2019).</td>
</tr>
<tr>
<td>10/19/2018</td>
<td>Updated policy with standard language, including clarifying the Authorization Period to state ‘until disease progression’ (no change to policy intent)</td>
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<tr>
<td>10/13/2017</td>
<td>No criteria changes with this annual update</td>
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<td>5/13/2016</td>
<td>No changes to coverage criteria with this annual update</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru310  
**Date of Origin:** July 12, 2013

**Topic:** Abraxane, nab-paclitaxel (a.k.a. albumin-bound paclitaxel, paclitaxel albumin-stabilized nanoparticle formulation, ABI-007)

**Committee Approval Date:** January 20, 2021  
**Next Review Date:** January 2022

**Effective Date:** February 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Nab-paclitaxel (Abraxane) is a protein-bound form of paclitaxel (generic Taxol). It is an intravenous taxane chemotherapy medication used in the treatment of certain cancers.

**PLEASE NOTE:** This policy and the coverage criteria below do not apply to paclitaxel (generic Taxol). Generic paclitaxel (Taxol) does not require pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of nab-paclitaxel (Abraxane) prior to coverage.

I.  Continuation of therapy (COT): Nab-paclitaxel (Abraxane) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   
   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Nab-paclitaxel (Abraxane) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, or C below is met.

A. A diagnosis of cancer where paclitaxel is indicated and criterion 1 or 2 below is met.
   1. Previous treatment with paclitaxel or docetaxel was not tolerated due to a documented hypersensitivity reaction, despite use of recommended premedications.

OR
2. There is a medical contraindication to recommended pre-medications (corticosteroids, diphenhydramine, and H2 antagonists for paclitaxel; corticosteroids for docetaxel) such that use of paclitaxel or docetaxel is contraindicated.

OR

B. A diagnosis of recurrent or refractory metastatic breast cancer (MBC) and treatment with an anthracycline-based chemotherapy regimen has been ineffective, contraindicated, or not tolerated. (see Appendix 1)

OR

C. A diagnosis of locally advanced or metastatic pancreatic cancer when given in combination with gemcitabine.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider nab-paclitaxel (Abraxane) to be a self-administered medication.

B. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Nab-paclitaxel (Abraxane) is considered not medically necessary (unless generic paclitaxel products were not tolerated due to hypersensitivity, despite use of pre-medications) when used for:

A. First-line treatment of non-small cell lung cancer (NSCLC)

B. First-line treatment of breast cancer (any stage)

V. Nab-paclitaxel (Abraxane) is considered investigational when used for all other conditions, including but not limited to treatment of the following, unless generic paclitaxel products were not tolerated due to hypersensitivity:

A. Colorectal cancer

B. Prostate cancer

C. Uterine sarcoma

Position Statement

Nab-paclitaxel (Abraxane) is paclitaxel (generic Taxol), a microtubule inhibitor, bound to a protein. It is approved for use in the treatment of metastatic breast cancer when front-line therapies are not effective, in the front-line treatment of metastatic pancreatic cancer when used in combination with gemcitabine, and for advanced non-small cell lung cancer (NSCLC) as a first-line therapy when used in combination with carboplatin.
Generic taxanes, including docetaxel and paclitaxel, are effective in the treatment of many patients with a variety of cancers including, but not limited to, lung, ovarian and breast cancers.

For recurrent or refractory metastatic breast cancer, nab-paclitaxel (Abraxane) is one of many effective single-agent options (see Appendix 1).

Nab-paclitaxel (Abraxane) has not been proven to be safer or more effective than generic paclitaxel for advanced or metastatic NSCLC. Nab-paclitaxel (Abraxane) is among several options (see Appendix 2) that may be used first-line to treat advanced or metastatic NSCLC.

For metastatic pancreatic cancer, the addition of nab-paclitaxel (Abraxane) to gemcitabine improves overall survival over gemcitabine alone.

Because nab-paclitaxel (Abraxane) is a unique formulation of paclitaxel, there is interest in using it in other indications where standard generic paclitaxel has been shown to be effective. There is currently no reliable evidence supporting superior efficacy of nab-paclitaxel (Abraxane) over generic paclitaxel or other taxanes (docetaxel); however, it is much more costly.

There is no reliable evidence to allow conclusion that nab-paclitaxel (Abraxane) is safer than generic paclitaxel.

* Like generic paclitaxel, nab-paclitaxel (Abraxane) is also associated with significant adverse effects including myelosuppression (boxed warning for neutropenia), sensory neuropathy, alopecia, nausea/vomiting, and hypersensitivity.

* Solvents in generic paclitaxel (Cremophor) may be associated with infusion-related side effects; pre-medication with corticosteroids, diphenhydramine, and H2 antagonists is used to minimize infusion reactions. Although nab-paclitaxel (Abraxane) does not require pre-medication, it also can cause hypersensitivity reactions.

* Solvents in generic docetaxel (polysorbate 80) can also cause hypersensitivity reactions. Premedication with dexamethasone is recommended.

Nab-paclitaxel (Abraxane) is currently being studied in many other types of cancers; however, the current state of the evidence is insufficient to support a clinical benefit in these populations.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

BREAST CANCER

Recurrent or refractory

- Nab-paclitaxel (Abraxane) has not been proven in high quality clinical studies to be more effective than alternative treatment options for recurrent or refractory metastatic breast cancer (MBC). Of note, the doses of paclitaxel, given as nab-paclitaxel (Abraxane), were significantly higher in the comparative trials than the generic paclitaxel doses, yet nab-paclitaxel (Abraxane) failed to produce consistently superior survival.

- One low quality randomized non inferiority trial reported nab-paclitaxel (Abraxane) to be as effective as paclitaxel for MBC, based on overall response rate. There was a trend towards superior overall survival; however, the trial was not powered for overall superiority. A subset analysis found overall survival was superior with nab-paclitaxel (Abraxane) in previously treated women (refractory or recurrent MBC), but not in patients being treated in the first-line setting. As a result, the FDA approved nab-paclitaxel (Abraxane) for use only in the refractory or recurrent metastatic setting. * Significant flaws that impacted the certainty of the results included use of an open-label design and an endpoint with subjective components (overall response rate).

- In addition, use of an open-label design also confounds reliability of overall survival results, as well as use of subsequent, post-protocol chemotherapy.

First-line:

- There is insufficient evidence to support the use of nab-paclitaxel (Abraxane) over generic taxanes for the first-line treatment of MBC. Studies are limited to one phase 2 trial versus docetaxel, along with the Phase 3 trial, which failed to show superior overall survival versus generic paclitaxel. [1]

- There is insufficient evidence to support the use of nab-paclitaxel (Abraxane) for earlier stage (non-metastatic) breast cancer. One Phase 3 trial evaluated nab-paclitaxel (Abraxane) vs. paclitaxel for primary invasive breast cancer. Pathological complete response (PCR), the primary outcome, was higher with nab-paclitaxel (Abraxane) than with paclitaxel (38% vs. 29%). Despite a statistically significant difference in PCR, it is unknown if this difference in PCR will translate in to improved overall survival, the most meaningful health outcome for breast cancer. [23]

- Because there is no evidence of superiority for overall survival with nab-paclitaxel (Abraxane) and there are many alternatives that provide a better value, the use of nab-paclitaxel (Abraxane) for first-line breast cancer (any stage) is considered not medically necessary.

NCCN guidelines

- The current National Comprehensive Cancer Network (NCCN) breast cancer guideline lists nab-paclitaxel (Abraxane) among many possible “other” single-agent treatment options for recurrent or metastatic breast cancer. Preferred single-agent options include but are not limited to taxanes (paclitaxel), anthracyclines (doxorubicin HCl, doxorubicin liposomal), anti-metabolites (gemcitabine, capecitabine) and microtubule inhibitors (vinorelbine, eribulin). See Appendix 1 for “Other” single-agent options. The NCCN does not specifically recognize use of nab-paclitaxel (Abraxane) for early stage (non-metastatic/non-recurrent) breast cancer. [5]
PANCREATIC CANCER:
- In the first-line treatment of metastatic pancreatic cancer, the addition of nab-paclitaxel (Abraxane) to gemcitabine improves overall survival over gemcitabine alone (8.5 versus 6.7 months), based on one large Phase 3 trial (n=861). [6,7]
- Nab-paclitaxel (Abraxane) plus gemcitabine is a NCCN preferred, category 2A recommended option for locally advanced pancreatic cancer and a preferred, category 1 recommendation for metastatic pancreatic cancer. [6]

NON-SMALL CELL LUNG CANCER (NSCLC):
- One randomized, controlled study compared nab-paclitaxel (Abraxane) to generic paclitaxel for advanced and metastatic NSCLC. Despite a higher overall response rate with nab-paclitaxel (Abraxane) (33% versus 25%), the primary endpoint, the study failed to demonstrate any statistically significant difference between the two treatments for overall survival (12.1 months versus 11.2 months, \( p=0.271 \)). Both progression free survival and overall survival were secondary endpoints and part of the non-inferiority analysis. [8]
- The current NCCN guideline lists nab-paclitaxel (Abraxane) among many possible platin-doublet treatment options for first-line treatment of NSCLC, in combination with cisplatin or carboplatin. Other platin-doublet options include but are not limited to cisplatin or carboplatin plus generic taxanes (paclitaxel, docetaxel), anti-metabolites (gemcitabine, pemetrexed), microtubule inhibitors (vinblastine, vinorelbine) and etoposide, as well as non-platin doublets (gemcitabine/docetaxel or gemcitabine/vinorelbine). [9]
- Because there is no evidence of superiority for overall survival and there are many alternatives that provide a better value, the use of nab-paclitaxel (Abraxane) for first-line NSCLC is considered not medically necessary.

**Use in Other Conditions**

OVARIAN CANCER:
- No single therapy is preferred for treatment of recurrent ovarian cancer based on the current NCCN ovarian cancer guideline. [10]
- For platinum-sensitive disease, carboplatin combinations with paclitaxel (Category 1), docetaxel or gemcitabine are preferred. Nab-paclitaxel (Abraxane) is listed as one of many single-agent options for platinum-sensitive recurrent disease (category 2A).
- The evidence for the use of single-agent nab-paclitaxel (Abraxane) in recurrent platinum-sensitive ovarian cancer is limited to one small Phase 2 trial. [11]
- Nab-paclitaxel (Abraxane) has not been studied in paclitaxel-resistant disease.
- More trials are needed to evaluate the place of nab-paclitaxel (Abraxane) in ovarian cancer therapy.
COLORECTAL CANCER, PROSTATE CANCER, AND UTERINE SARCOMA
-
Several small studies have evaluated nab-paclitaxel (Abraxane) in colorectal cancer \[27\], and prostate cancer \[13\]. However, no promising activity was shown in these cancers.

- No published clinical trials evaluating generic paclitaxel or nab-paclitaxel (Abraxane) in uterine sarcoma were identified in researching this policy.

- Generic paclitaxel or nab-paclitaxel (Abraxane) are not part of the standard of care for any of these cancers based on current NCCN guidelines. \[19\]

OTHER CANCERS
-
Generic paclitaxel is part of the treatment paradigm for several other cancers including, but not limited to, endometrial, esophageal junction, head and neck squamous cell cancer (HNSCC), urothelial, and cutaneous melanoma. \[19\] Although nab-paclitaxel (Abraxane) has also been used in several of these settings, it has not been shown to be safer or more effective than generic paclitaxel. \[12, 14-17\]

- In some cancers, such as cutaneous melanoma, immune checkpoint inhibitor therapies and targeted therapies have eclipsed the use of chemotherapy agents like generic paclitaxel and nab-paclitaxel (Abraxane) as they are associated with better outcomes (e.g. improved overall survival).

- There are two small, uncontrolled trials evaluating nab-paclitaxel (Abraxane) in cholangiocarcinoma when used in combination with gemcitabine or gemcitabine plus cisplatin.

* One study did not meet its primary endpoint. \[24\] The other study suggested potential activity with this combination relative to a historical cohort. \[25\] A phase 3 study is planned to determine whether there is any clinical benefit of nab-paclitaxel (Abraxane) in this treatment setting.

* There are several other potential chemotherapy regimens recommended by the NCCN in this treatment setting. \[26\]

- The NCCN recognizes the use of generic paclitaxel for a variety of cancers, including bladder, breast, cervical, esophageal, gastric, head and neck (SCCHN), kidney, lung, ovarian, penile, testicular, uterine, endometrial, and thyroid cancers; melanoma, unspecified adenocarcinoma, thymoma, and angiosarcoma. \[19\]

Safety
-
There is no reliable evidence to allow conclusion that nab-paclitaxel (Abraxane) is safer than generic paclitaxel.

- Generic paclitaxel contains solvents, such as Cremophor, that dissolve the paclitaxel and may be associated with infusion-related hypersensitivity requiring premedication with corticosteroids, diphenhydramine and H2-receptor antagonists. \[19\]

- Nab-paclitaxel (Abraxane) formulation does not contain solvents and may be an option for patients with hypersensitivity to generic paclitaxel. Of note, use of nab-paclitaxel (Abraxane) has not been studied in patients with severe hypersensitivity reactions to generic paclitaxel. \[9\] Likewise, nab-paclitaxel (Abraxane) may be an option in patients with hypersensitivity to generic docetaxel.
- Although nab-paclitaxel (Abraxane) does not require pre-medication, it can cause hypersensitivity reactions. [2]

- Although both docetaxel (generic Taxotere) and paclitaxel (generic Taxol) are both “taxanes,” they have different side effects. Namely, paclitaxel (generic Taxol) contains the solvent Cremophor which is associated with infusion-related hypersensitivity reactions with paclitaxel. Giving pre-medications (e.g. steroids, diphenhydramine, and ranitidine) can help minimize these infusion reactions. [19]

- Infusion-related reactions, which happen at the time of the infusion, can be seen with docetaxel (generic Taxotere), as it contains polysorbate 80, another diluent known to cause infusion reactions. Pre-medication with dexamethasone is recommended prior to infusion of docetaxel. [19]

- An allergic reaction to docetaxel aside from during an infusion generally is considered a reaction to the docetaxel and not the diluent. Generally, use of another taxane would be relatively contraindicated.

- Neuropathy can be a dose-limiting side effect of either generic paclitaxel or nab-paclitaxel (Abraxane); however, neuropathy is not considered a hypersensitivity reaction. In addition, there is no conclusive evidence that the incidence of neuropathy is lower with nab-paclitaxel (Abraxane) than with generic paclitaxel. [20] A study in patients with breast cancer found a similar incidence of neuropathy with generic paclitaxel and nab-paclitaxel (Abraxane). [21] A recent review of the use of nab-paclitaxel (Abraxane) in patients with non-small cell lung cancer showed less grade four neuropathy, compared to generic paclitaxel, but the incidence of neuropathy overall was about the same. [22]

- The most common adverse reactions (>20%) reported with nab-paclitaxel (Abraxane) include alopecia, blood dyscrasias (anemia, neutropenia, thrombocytopenia), sensory neuropathy, abnormal ECG, fatigue/asthenia, myalgia/arthritis, liver function test abnormalities (AST/alkaline phosphatase elevation), GI disturbance (nausea, diarrhea), infections. [2]

- Like generic paclitaxel, nab-paclitaxel (Abraxane) carries a Boxed Warning for neutropenia. [2,17]
### Appendix 1: Chemotherapy Agents Used in the Treatment of Metastatic Breast Cancer

<table>
<thead>
<tr>
<th>Preferred Single Agents</th>
<th>Chemotherapy Combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anthracyclines</strong></td>
<td></td>
</tr>
<tr>
<td>doxorubicin (generic Adriamycin)</td>
<td>AC: doxorubicin/cyclophosphamide</td>
</tr>
<tr>
<td>Doxorubicin, liposomal (Doxil)</td>
<td>EC: epirubicin/ cyclophosphamide</td>
</tr>
<tr>
<td></td>
<td>CMF: cyclophosphamide/methotrexate/ fluorouracil</td>
</tr>
<tr>
<td><strong>Taxanes</strong></td>
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</tr>
<tr>
<td>paclitaxel (generic Taxol)</td>
<td>doi:taxel/capecitabine (generic Xeloda)</td>
</tr>
<tr>
<td><strong>Anti-metabolites</strong></td>
<td></td>
</tr>
<tr>
<td>capecitabine (generic Xeloda)</td>
<td>GT: gemcitabine/ paclitaxel</td>
</tr>
<tr>
<td>gemcitabine (generic Gemzar)</td>
<td>gemcitabine/ carboplatin</td>
</tr>
<tr>
<td></td>
<td>paclitaxel/bevacizumab</td>
</tr>
<tr>
<td></td>
<td>carboplatin/ paclitaxel OR nab-paclitaxel (Abraxane)</td>
</tr>
<tr>
<td><strong>Other microtubule inhibitors</strong></td>
<td></td>
</tr>
<tr>
<td>vinorelbine (generic Navelbine)</td>
<td></td>
</tr>
<tr>
<td>eribulin (Halaven)</td>
<td></td>
</tr>
<tr>
<td><strong>Other Single Agents</strong></td>
<td>Agents Targeted for HER-2 positive disease b</td>
</tr>
<tr>
<td>cyclophosphamide (generic Cytoxan)</td>
<td>pertuzumab (Perjeta) c</td>
</tr>
<tr>
<td>carboplatin</td>
<td>trastuzumab</td>
</tr>
<tr>
<td>docetaxel</td>
<td>ado- trastuzumab (Kadcyla)</td>
</tr>
<tr>
<td>nab-paclitaxel (Abraxane)</td>
<td>lapatinib (Tykerb)</td>
</tr>
<tr>
<td>cisplatin</td>
<td>tucatinib (Tukysa)/trastuzumab/capecitabine [cat 1]</td>
</tr>
<tr>
<td>epirubicin</td>
<td>fam-trastuzumab deruxtecan (Enhertu)</td>
</tr>
<tr>
<td>ixabepilone (Ixempra)</td>
<td>neratinib (Nerlynx)</td>
</tr>
</tbody>
</table>

a All are NCCN 2A recommendations, except as noted
b Most agents for HER-2 positive disease are used in combination with cytotoxic chemotherapy (e.g. docetaxel, paclitaxel, carboplatin, capecitabine). vinorelbine).
c Category 1, with trastuzumab and docetaxel.
### Appendix 2: Cytotoxic Chemotherapy Agents Used in the First-line Treatment of Non-small Cell Lung Cancer

**PD-1/PD-L1 inhibitors**
- pembrolizumab (Keytruda) + pemetrexed (Alimta) + cisplatin or carboplatin (preferred)
- atezolizumab (Tecentriq) + carboplatin/paclitaxel/bevacizumab
  - carboplatin/nab-paclitaxel (Abraxane) [category 2A]
- nivolumab (Opdivo) + ipilimumab (Yervoy)
  - ipilimumab (Yervoy) + pemetrexed (Alimta) + carboplatin/cisplatin

**Platin-doublets**
- cisplatin or carboplatin + docetaxel, etoposide, gemcitabine, paclitaxel, nab-paclitaxel (Abraxane), pemetrexed (Alimta)

**Other doublet therapies:**
- gemcitabine + docetaxel or vinorelbine

**Doublet chemotherapy plus bevacizumab**
- carboplatin + paclitaxel + bevacizumab
- carboplatin or cisplatin + pemetrexed (Alimta) + bevacizumab [category 2A]

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* All are NCCN Category 1 recommendations, except as noted. This list includes most but not all regimens (for reference).

### Appendix 3: Lung cancer histological subtypes (and approximate incidence, %)

**Lung cancer (162.0, 162.2-162.5, 162.8, 162.9)**

**A. Non-small cell lung cancer (NSCLC) (85-90%)**
1) Squamous cell (epidermoid) carcinoma (25-30%)
2) Non-squamous cell (55%)
   - Adenocarcinoma (40%)
   - Large cell (undifferentiated) carcinoma (10-15%)
   - Other

**B. Small cell lung cancer (SCLC) (10-15%)**

**C. Unspecified lung cancer (< 5%)**


### Cross References
None
<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J9264</td>
<td>Paclitaxel protein-bound particles, (Abraxane) 1 mg IV</td>
</tr>
</tbody>
</table>

References


These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.


19. NCCN Drugs and Biologics Compendium (NCCN Compendium) [Updated regularly]. [cited 11/19/2020]; Available from: https://www.nccn.org/professionals/drug_compendium/content/


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/20/2021</td>
<td>- Removed the following diagnoses from the 'Investigational' list in criterion V. so use in these conditions could be adjudicated using criterion A. (solvent-based hypersensitivity reaction to generic paclitaxel or when required pre-medications are contraindicated): endometrial cancer, gastroesophageal cancer, squamous cell cancer of the head and neck, ovarian cancer, and cholangiocarcinoma. - Updated continuation of therapy (COT) language.</td>
</tr>
<tr>
<td>6/15/2020</td>
<td>Removed references to brand Avastin and brand Herceptin from policy, to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>- Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). - Cholangiocarcinoma was added to investigational uses.</td>
</tr>
<tr>
<td>1/31/2019</td>
<td>There were no changes to coverage criteria with this annual update. Clarified documentation requirements (no change to intent).</td>
</tr>
<tr>
<td>2/16/2018</td>
<td>No change to intent of coverage criteria with this annual update.</td>
</tr>
<tr>
<td>2/17/2017</td>
<td>Add coverage criteria for docetaxel hypersensitivity reaction.</td>
</tr>
<tr>
<td>2/12/2016</td>
<td>Added to investigational uses: endometrial cancer, uterine sarcoma</td>
</tr>
<tr>
<td>07/12/2013</td>
<td>New policy</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru316

**Topic:** repository corticotropin

- Acthar Gel
- Purified Cortrophin Gel

**Date of Origin:** July 12, 2013

**Committee Approval Date:** December 8, 2021

**Effective Date:** January 15, 2022

**Next Review Date:** December 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is a medication used to treat infantile spasms and a variety of inflammatory conditions. Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is a porcine-derived, extended-release preparation of adrenocorticotropic hormone (ACTH). ACTH is a hormone in the body, which stimulates the adrenal cortex gland to secrete natural steroids (cortisol, corticosterone, and aldosterone).

**PLEASE NOTE:** This policy does not apply to cosyntropin (generic Cortrosyn; also referred to as ACTH), which is used for cortisol-stimulation testing.
Policy/Criteria

Most contracts require pre-authorization approval of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) prior to coverage.

I. Continuation of therapy (COT): Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) may be considered medically necessary in patients with infantile spasms (West Syndrome) when prescribed by, or in consultation with a pediatric neurologist or an epilepsy physician specialist.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers repository corticotropin (Acthar Gel, Purified Cortrophin Gel) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, repository corticotropin (Acthar Gel, Purified Cortrophin Gel) may be authorized in quantities of six-5 ml vials per month.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is considered not medically necessary when used for the following conditions:

A. Dermatologic diseases including severe erythema multiforme, Stevens-Johnson syndrome, systemic dermatomyositis, and polymyositis, and psoriasis.

B. Multiple sclerosis, acute exacerbation in adults.

C. Nephrotic syndrome, without uremia of the idiopathic type (idiopathic membranous nephropathy) or that due to lupus erythematosus.

D. Ophthalmic diseases including keratitis, iritis, iridocyclitis, diffuse posterior uveitis and choroiditis, optic neuritis, chorioretinitis, anterior segment inflammation.

E. Rheumatic disorders including psoriatic arthritis, rheumatoid arthritis, including juvenile rheumatoid arthritis, ankylosing spondylitis.

F. Sarcoidosis (symptomatic).
G. Serum sickness.
H. Systemic lupus erythematosus (SLE), exacerbation.

V. Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is considered investigational when used for all other conditions.

**Position Statement**

- Repository corticotropin injection (Acthar and Purified Cortrophin Gel) is a purified adrenocorticotropic hormone (ACTH), available as two branded formulations:
  * Acthar Gel was first approved for sale in the United States in 1952.
  * Purified Cortrophin Gel was first FDA approved in 1954 and was widely prescribed until the 1980s but was later discontinued. In November 2021, the FDA approved a supplemental New Drug Application for reintroduction of a branded competitor to Acthar, known as Purified Cortrophin Gel (repository corticotropin injection).

- Both brands of repository corticotropin have been used in a number of different indications, though use was largely supplanted by the commercial availability of corticosteroids (e.g., hydrocortisone, prednisone, methylprednisolone), all available as much lower-cost generics.

- Intent of the policy is to cover repository corticotropin (Acthar Gel, Purified Cortrophin Gel) for infantile spasms, an indication it has demonstrated safety and efficacy (as detailed in the coverage criteria).

- Although repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is FDA approved for a variety of inflammatory conditions, these indications are grandfathered given trials establishing efficacy were not required at the time when repository corticotropin (Acthar Gel, Purified Cortrophin Gel) was originally approved. Still today, there is insufficient evidence to establish efficacy for these indications, or superiority to less costly alternatives (such as generic corticosteroids). Therefore, the use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) for indications other than infantile spasms is considered not medically necessary. Specifically:
  * For multiple sclerosis, there is insufficient evidence to establish that repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is superior to much less costly standard of care alternatives, such as standard “pulse” methylprednisolone therapy in the management of acute exacerbations.
  * For nephrotic syndrome (idiopathic or due to lupus), there is insufficient evidence to establish that repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is superior to much less costly standard of care alternatives such as calcineurin inhibitors and cyclophosphamide, along with mycophenolate, and rituximab, all endorsed by clinical guidelines.

- Since repository corticotropin (Acthar Gel, Purified Cortrophin Gel) stimulates steroid production in the body, the warnings of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) use is similar to those found with steroid supplementation, for example, impaired sugar tolerance and high blood sugars.
- Side effects or intolerance to corticosteroids are largely expected with the use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) given the medication stimulates steroid production in the body.

- In addition, the evidence for significant, previously unreported safety events with the use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is evolving. Based on the available evidence, the safety of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) relative to other therapies is unknown at this time.

Clinical Efficacy

Infantile Spasms
- There is moderate certainty that repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is safer and more effective than vigabatrin (Sabril) in the management of patients with infantile spasms (aka West syndrome), based on a high-quality systematic review (Cochrane, 2013). [1] The review concluded the following:
  * Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) resulted in greater improvements in seizure frequency over 14 days compared with vigabatrin (Sabril) (76% vs 54%).
  * Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) resulted in greater improvements in neurodevelopmental outcomes as measured by standardized behavioral scales.

- Repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is recognized by clinical practice guidelines as an option in the management of patients with infantile spasms, with repository corticotropin (Acthar Gel, Purified Cortrophin Gel) considered preferentially over vigabatrin. [2]

Acute Exacerbations of Multiple Sclerosis
- The use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is considered not medically necessary when used for multiple sclerosis. Multiple sclerosis is an FDA-approved indication for repository corticotropin (Acthar Gel, Purified Cortrophin Gel); however, corticosteroids, such as methylprednisolone and dexamethasone, are less costly alternatives.

- The evidence is as follows:
  * A head-to-head clinical trial compared a 14-day course of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) with methylprednisolone 1 gm given intravenously daily for three days. At the end of twelve weeks, there was no statistically significant difference between the two regimens in the symptoms of multiple sclerosis as measured by the expanded disability symptom scale (EDSS or Kurtzke status scale). [3]
  * A high-quality systematic review concluded that there was no evidence of improved symptoms or outcomes resulting from the use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) in the management of acute exacerbations of multiple sclerosis compared with standard “pulse” methylprednisolone therapy. [4]
A more recent pilot trial (n=20) evaluated a 5-day course of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) for management of acute MS exacerbations. However, because the comparison was two routes of administration of repository corticotropin (intramuscular versus subcutaneous), no conclusion can be made regarding the relative benefit of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) versus other treatment options. [5]

Nephrotic Syndrome

- The use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) is considered not medically necessary when used for nephrotic syndrome, including membranous glomerulonephropathy. Nephrotic syndrome is an FDA-approved indication; however, there are multiple less costly alternatives supported by standard of care guidelines, including corticosteroids, calcineurin inhibitors, mycophenolate, and alkylating-based therapy (cyclophosphamide). [6]

- The evidence for the use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) for proteinuria/nephrotic syndrome is limited to retrospective case series, [7,8] one small randomized controlled trial versus standard therapy, [9] and two more recent non-controlled pilot trials and a Cochrane review of the available literature. [10-12]

* One small randomized noninferiority trial (n=32) compared repository corticotropin (Acthar Gel, Purified Cortrophin Gel) to standard therapy of methylprednisolone in combination with cytotoxic therapy in subjects with idiopathic membranous nephropathy. Primary outcome was cumulative remission rate. Similar response was seen with standard therapy as compared to repository corticotropin. [9]

* A small prospective, open-label, single-arm trial (n=15) evaluated repository corticotropin (Acthar Gel, Purified Cortrophin Gel) 80 units twice weekly for 6 months in subjects with resistant glomerular diseases, including membranous nephropathy, minimal change disease (MCD), and focal segmental glomerulosclerosis (FSGS), despite use of at least two prior immunosuppressants.[10] A second small Phase 2 dose-ranging pilot trial (n=20) compared repository corticotropin (Acthar Gel, Purified Cortrophin Gel) 40 and 80 units twice weekly for 12 weeks in subjects with idiopathic membranous nephropathy. [11] In both trials, repository corticotropin (Acthar Gel, Purified Cortrophin Gel) improved renal function from baseline, as defined by improvement in proteinuria; however, the lack of placebo-control limits conclusion of relative treatment effect.

* A Cochrane systematic review (2021) of immunosuppressive treatment for adults with idiopathic membranous nephropathy concluded the following: [12]
  - Treatment options such as mycophenolate mofetil, repository corticotropin injection, rituximab and others have only been examined in a few studies.
  - There is not enough data to draw conclusions regarding their safety and effectiveness from these studies on the use of these treatments in adults with primary membranous nephropathy and nephrotic syndrome.
Other Indications

There is insufficient evidence for other indications (including, but not limited to, rheumatic disorders, systemic lupus erythematosus, dermatologic conditions, serum sickness, ophthalmic diseases, and pulmonary sarcoidosis) that treatment with repository corticotropin (Acthar Gel, Purified Cortrophin Gel) results in improved efficacy or safety when compared with other standard treatments. The evidence is limited to case reports and retrospective case series, including evidence summarized in systematic reviews for myasthenia gravis (MG), gout, and Guillain-Barré syndrome (GBS).[13-17] Therefore, use in all these indications is considered not medically necessary.

Safety [18-19]

- There is a substantial track-record of marketing experience extending over 50 years with repository corticotropin (Acthar Gel, Purified Cortrophin Gel). In pediatric patients, the length of market experience extends at least over five years.

- Common adverse reactions for repository corticotropin (Acthar Gel, Purified Cortrophin Gel) are similar to those of corticosteroids and include fluid retention, alteration in glucose tolerance, elevation in blood pressure, behavioral and mood changes, increased appetite, and weight gain.

- Specific adverse reactions resulting from use of repository corticotropin (Acthar Gel, Purified Cortrophin Gel) in children less than 2 years of age are increased risk of infections, hypertension, irritability, Cushingoid symptoms, cardiac hypertrophy, and weight gain.

- Serious adverse events associated with repository corticotropin (Acthar Gel, Purified Cortrophin Gel) are also similar to those of corticosteroids and include increase susceptibility to infections, adrenal suppression after prolonged use, Cushing’s syndrome, gastrointestinal perforation and bleeding, and negative effects on growth and development.

Dosing [18-19]

- In the treatment of infantile spasms, the recommended dose is 150 units (U)/m² divided into twice daily intramuscular injections of 75 U/m². After 2 weeks of treatment, dosing should be gradually tapered and discontinued over a 2-week period.

Cross References

Repository Corticotropin Injection, BlueCross BlueShield Association Medical Policy, 5.01.17, Issue September 2019.

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<td>J0800</td>
<td>Injection, corticotropin (Acthar Gel, Purified Cortrophin Gel) up to 40 units</td>
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Revision History

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<tr>
<td>12/8/2021</td>
<td>Added Purified Cortrophin Gel, a re-introduced formulation of repository corticotrophin gel. No change to criteria or intent of policy.</td>
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<td>1/20/2021</td>
<td>No changes to coverage criteria with this annual update.</td>
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<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<td>1/31/2019</td>
<td>No coverage criteria changes with this annual update. Clarified documentation language (No change to intent)</td>
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Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Topic:** Gazyva, obinutuzumab

**Date of Origin:** January 17, 2014

**Committee Review Date:** July 16, 2021

**Next Review Date:** April 2022

**Effective Date:** October 1, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Obinutuzumab (Gazyva) is an intravenous (IV) humanized monoclonal antibody. It is used in the treatment of chronic lymphocytic leukemia (CLL), and follicular lymphoma (FL), when administered with chemotherapy.
Policy/Criteria

Most contracts require pre-authorization approval of obinutuzumab (Gazyva) prior to coverage.

I. Continuation of therapy (COT): Obinutuzumab (Gazyva) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Obinutuzumab (Gazyva) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below is met.

A. Diagnosis of chronic lymphocytic leukemia (CLL) when criteria 1 and 2 below are met:
   1. Obinutuzumab (Gazyva) will be administered in combination with one of the following (a, b or c):
      a. Chlorambucil.
      
      OR

      b. Venetoclax (Venclexta).
OR
c. Acalabrutinib (Calquence)

AND
2. The patient has had no prior medication therapy for CLL.

OR
B. Diagnosis of relapsed or refractory follicular lymphoma (FL) when criteria 1 and 2 below are met:
   1. Documentation of disease progression on or after a rituximab-containing regimen.
   
AND
   2. Obinutuzumab (Gazyva) will be administered in combination with bendamustine for six cycles, followed by obinutuzumab (Gazyva) monotherapy.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider obinutuzumab (Gazyva) to be a self-administered medication.
B. When preauthorization is approved, obinutuzumab (Gazyva) will be authorized as follows:
   1. **CLL:** A single treatment course of up to eight 1,000-mg infusions in a 12-month period.
   2. **FL:** Up to eight 1,000-mg infusions in the initial 6-month period when administered with bendamustine.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.
   1. **CLL:** No additional treatment courses will be authorized.
   2. **FL:** Up to six 1,000-mg infusions in a 12-month period for a lifetime maximum of 2 years on obinutuzumab (Gazyva) monotherapy.

IV. Obinutuzumab (Gazyva) is considered not medically necessary when used for untreated follicular lymphoma (FL) [first-line setting].

V. Obinutuzumab (Gazyva) is considered investigational when used for all other conditions.
Position Statement

- Obinutuzumab (Gazyva), an anti-CD20 humanized monoclonal antibody, is a B-cell-directed immunotherapy used in combination with chlorambucil for the treatment of chronic lymphocytic leukemia (CLL), in combination with bendamustine for the treatment of relapsed or refractory follicular lymphoma (FL), or in combination with chemotherapy for previously untreated stage II bulky, III, or IV FL.

- The intent of this policy is to allow coverage in the settings with proven benefit. The use of obinutuzumab (Gazyva) is considered ‘not medically necessary’ for uses with no proven benefit over less-costly alternatives.

- Obinutuzumab (Gazyva) for CLL and FL is coverable for a finite treatment course, as detailed in the coverage criteria. The safety and effectiveness of additional treatment courses has not been studied.

Chronic Lymphocytic Leukemia

- Obinutuzumab (Gazyva) was studied in patients who had no previous therapy for their CLL, and who were not candidates for more aggressive chemotherapy due to advanced age and/or comorbid conditions.

- FDA approval was based on improved progression-free survival (PFS) in patients who received chlorambucil plus obinutuzumab (Gazyva) versus those who received chlorambucil alone. There is currently no mature overall survival data available. Subsequently, the FDA approved use of venetoclax (Venclexta) in combination with obinutuzumab (Gazyva), based on improvement in PFS as compared to chlorambucil plus obinutuzumab (Gazyva).

- Obinutuzumab (Gazyva) for CLL consists of a finite treatment course, as detailed in the coverage criteria. The safety and effectiveness of additional treatment courses has not been studied.

- National Comprehensive Cancer Network (NCCN) CLL/Small Lymphocytic Lymphoma (SLL) guideline lists obinutuzumab (Gazyva) as a treatment option for CLL and SLL.

Relapsed or Refractory Follicular Lymphoma (FL)

- Obinutuzumab (Gazyva) was studied in patients with FL who had no response to, or progressed on a rituximab-containing regimen.

- FDA approval in relapsed or refractory FL was based on PFS in patients who received bendamustine plus obinutuzumab (Gazyva) versus bendamustine alone. There is currently no mature overall survival data available, nor is there any evidence that it improves any clinically relevant outcome such as symptom control or improved quality of life.

- The NCCN lists obinutuzumab (Gazyva) plus chemotherapy among several preferred, treatment option for relapsed or refractory FL.

Previously Untreated Follicular Lymphoma (first-line)

- Obinutuzumab (Gazyva) was also studied in patients with previously untreated stage II bulky (tumor ≥ 7 cm), III, or IV FL when given in combination with chemotherapy. It was compared with rituximab plus chemotherapy.
- There was a small advantage in PFS at three years; however, there was no difference in three-year survival. This study does not establish any clinically relevant difference between these two therapies.
- Rituximab-based regimens are the standard of care in treating FL, and are generally more cost effective than obinutuzumab (Gazyva)-based regimens.
- Because there is no proven efficacy or safety benefit of obinutuzumab (Gazyva)-based regimens over lower cost rituximab-based regimens, the use of obinutuzumab (Gazyva) in the first-line setting for FL is considered not medically necessary.

Safety
- There is a high potential for off-label use of obinutuzumab (Gazyva) in B-cell-mediated diseases other than CLL and FL; however, there is no evidence supporting its safety and efficacy in these settings.
- Obinutuzumab (Gazyva), as well as all anti-CD20 monoclonal antibodies, carries a boxed warning describing a risk for hepatitis B virus reactivation and for progressive multifocal leukoencephalopathy (PML).
- Infusion reactions are common and may be severe. Premedication is recommended. The first dose should be administered slowly and divided over two days.
- Other common adverse effects include bone marrow suppression, fever, cough, and musculoskeletal disorder.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

Chronic Lymphocytic Leukemia
- There is a single, low-quality, unpublished, open-label, randomized controlled trial evaluating obinutuzumab (Gazyva) in combination with chlorambucil as a first-line therapy for certain patients with chronic lymphocytic leukemia (CLL). [1 2]
  * Patients enrolled in the trial had confirmed B-cell CLL, had no prior medication treatment for their disease, and were not candidates for more aggressive chemotherapy due to comorbid conditions (e.g. reduced renal function). [1 2]
  * The primary endpoint in the study was investigator-reported progression-free survival (PFS). Overall survival (OS) will be reported as a secondary endpoint. PFS has not been validated as an accurate predictor of OS in this setting. [3]
  * The study was completed in two stages. Stage 1 of the trial compared chlorambucil plus obinutuzumab (Gazyva) with chlorambucil alone. Stage 2 of the trial compared chlorambucil plus obinutuzumab (Gazyva) with chlorambucil plus rituximab. [1 2]
The obinutuzumab (Gazyva) treatment arm was reported to have a 12-month PFS advantage over chlorambucil alone (23 months and 11 months, respectively). [1 2]

In stage 2 of the trial, the obinutuzumab (Gazyva) treatment arm was reported to have an 11.5-month PFS advantage over the rituximab treatment arm (26.7 months and 15.2 months, respectively). [4 5] OS data from this trial is not mature at this time.

Evidence from the trial was appraised as being of low quality due to the open-label design or the study and the high rate of attrition.

A subsequent phase 3 trial compared venetoclax (Venclexta) plus obinutuzumab (Gazyva) versus chlorambucil plus obinutuzumab (Gazyva). The combination with venetoclax was numerically superior to chlorambucil for PFS (88.2% vs. 64% at 24 months). However, all-cause mortality was higher in the venetoclax group (9.3% vs. 7.9% with chlorambucil). [6 7]

The evidence of efficacy for obinutuzumab (Gazyva) in combination with acalabrutinib (Calquence) in the front-line CLL setting is based on one phase III, open-label trial; ELEVATE-TN. This trial evaluated progression free survival (PFS) as the primary endpoint, and overall response rate (ORR) as a secondary endpoint. [8]

Patients with treatment-naïve CLL were randomized to receive acalabrutinib monotherapy, acalabrutinib with obinutuzumab, or chlorambucil with obinutuzumab.

At median follow-up of 28.3 months, median PFS was longer with acalabrutinib-obinutuzumab (NR) and acalabrutinib monotherapy (NR), compared with obinutuzumab-chlorambucil (22.6 months). In addition, Treatment with acalabrutinib-obinutuzumab, acalabrutinib, and obinutuzumab-chlorambucil led to an overall response rate (ORR) of 94%, 86%, and 79%, respectively.

This trial was not designed nor powered to assess the benefit of acalabrutinib monotherapy versus acalabrutinib-obinutuzumab.

Obinutuzumab (Gazyva) has not been studied in the relapsed or refractory CLL setting, or when used as a single agent for CLL.

NCCN lists obinutuzumab (Gazyva) as a treatment option when used as monotherapy for relapsed or refractory CLL/SLL. Obinutuzumab (Gazyva) in combination with venetoclax (Venclexta) or acalabrutinib (Calquence) is listed as treatment option in the first-line CLL setting in patients without del(17p)/TP53 mutation as well as in the first-line CLL setting in patients with a del(17p)/TP53 mutation. [9]

**Follicular lymphoma**

There is a low-quality, unpublished, open-label, randomized controlled (RCT) trial [GADOLIN study] evaluating obinutuzumab (Gazyva) in combination with bendamustine as a therapy for patients with relapsed or refractory indolent non-Hodgkin lymphomas (NHLs) who had no response or progressed on a rituximab-containing regimen. The vast majority of the subjects enrolled in the trial had follicular lymphoma (FL). [2 10] Results reported below are for the cohort with FL (N = 321).
Patients were randomized to receive either obinutuzumab (Gazyva) plus bendamustine or bendamustine alone. Patients who received obinutuzumab (Gazyva) plus bendamustine and did not have disease progression at the end of 6 months continued receiving obinutuzumab (Gazyva) monotherapy for up to 2 years.

The median PFS of the obinutuzumab (Gazyva) plus bendamustine arm has not been reached, although it is estimated to be 29.2 months. The reported median PFS of the bendamustine alone arm is 13.8 months.

The median OS has not been reached in either arm after about 45 months.

A second open-label, RCT compared obinutuzumab (Gazyva) plus chemotherapy with rituximab plus chemotherapy as a front-line regimen in patients with CD20-positive indolent non-Hodgkin’s lymphoma. [11 12]

Patients in the FL cohort had stage II bulky, stage III, or stage IV disease, and had no prior systemic therapy for their disease.

Those achieving at least a partial response after initial combination therapy were continued on monotherapy with the assigned monoclonal antibody therapy.

The three-year PFS was 81.9% and 77.9% in the obinutuzumab (Gazyva) and rituximab treatment arms, respectively [HR 0.71; 95% CI 0.54, 0.93; p = 0.01]. Median PFS was not reached in either group.

There was no difference between groups in 3-year OS. Median OS was not reached in either group.

The NCCN lists obinutuzumab (Gazyva) plus chemotherapy among several preferred, treatment options for relapsed or refractory FL. For front-line treatment, the guideline lists both obinutuzumab (Gazyva) plus chemotherapy and rituximab plus chemotherapy as preferred, treatment options. [13]

Investigational conditions

Although the GADOLIN study enrolled patients with indolent NHLs that had no response to, or had advanced on rituximab-containing regimens, the vast majority of subjects enrolled in this study had relapsed or refractory FL. There were very low numbers of patients with other indolent NHLs enrolled in the trial so the safety and efficacy of obinutuzumab (Gazyva) in other NHL populations could not be evaluated. [2 10]

Obinutuzumab (Gazyva) has not been evaluated in non-cancer B-cell mediated conditions (e.g., rheumatoid arthritis).

Safety [2]

Package labeling for obinutuzumab (Gazyva) carries a boxed warning for reactivation of hepatitis B virus and for progressive multifocal leukoencephalopathy (PML).

Infusion reactions are common and may be severe or fatal. Premedication is recommended and the first infusion should be split over two days, with 100 mg infused on day 1 and 900 mg infused on day 2.

Obinutuzumab (Gazyva) should only be administered by a healthcare professional (HCP) with access to appropriate medical support (e.g., crash cart).
- Common adverse effects (incidence ≥ 10%) include: infusion reactions, neutropenia, thrombocytopenia, anemia, pyrexia, cough, and musculoskeletal disorders.
- Live virus vaccines should not be administered prior to or during therapy with obinutuzumab (Gazyva).

**Dosing**[^2]

- Obinutuzumab (Gazyva) should only be given intravenously through a dedicated line by a healthcare professional (HCP).
- A treatment course of obinutuzumab (Gazyva) is as follows (given in 28-day cycles) for CLL:
  * 100 mg IV on day of 1 cycle 1, then 900 mg IV on day 2 of cycle 1
  * 1,000 mg IV on days 8 and 15 of cycle 1
  * 1,000 mg IV on day 1 of cycles 2 through 6
- A treatment course of obinutuzumab (Gazyva) is as follows (given in 28-day cycles) for FL:
  * 1,000 mg IV on days 1, 8 and 15 of cycle 1
  * 1,000 mg IV on day 1 of cycles 2 through 6
  * 1,000 mg IV monotherapy every 2 months for up to 2 years
- The use of obinutuzumab (Gazyva) beyond one treatment course for CLL has not been studied.

### Cross References

<table>
<thead>
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<th>Cross References</th>
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<tr>
<td>BlueCross BlueShield Association (BCBSA) Medical Policy 2.03.05; Uses of Monoclonal Antibodies for the Treatment of Non-Hodgkin Lymphoma (November, 2019)</td>
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<tr>
<td>Copiktra, duvelisib, Medication Policy Manual, Policy No. dru573</td>
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<td>Non-Preferred Products with Therapeutically Interchangeable Biosimilars/Reference Products, Policy No. dru620</td>
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<td>Venclexta, venetoclax, Medication Policy Manual, Policy No. dru462</td>
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### Codes

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<td>J9301</td>
<td>Injection, obinutuzumab (Gazyva), 10 mg</td>
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</table>
References


4. Goede V, Fischer K, Busch R KC, et al. 6 Head-To-Head Comparison Of Obinutuzumab (GA101) Plus Chlorambucil (Cbl) Versus Rituximab Plus Cbl In Patients With Chronic Lymphocytic Leukemia (CLL) and Co-Existing Medical Conditions (Comorbidities): Final Stage 2 Results Of The CLL111 Trial. Abstract 60276; Presented at the December 2013 American Society of Hematology (ASH) Annual Meeting and Exposition, December 7-10, 2013, New Orleans, LA.


**Revision History**

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<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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<tr>
<td>10/28/2020</td>
<td>Added coverage criteria for use in combination with acalabrutinib (Calquence) for treatment-naïve CLL/SLL.</td>
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<tr>
<td>6/15/2020</td>
<td>Removed references to brand Rituxan from policy, to account for upcoming changes in biosimilars policy (dru620).</td>
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<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<tr>
<td>4/25/2019</td>
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<tr>
<td>3/19/2019</td>
<td>Added use in untreated follicular lymphoma (first-line) as not medically necessary.</td>
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<tr>
<td>1/13/2017</td>
<td>Added coverage criteria for refractory or relapsing follicular lymphoma.</td>
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<tr>
<td>1/8/2016</td>
<td>Adjusted quantity limit to better reflect dosing in package labeling (limit to eight 1000-mg infusions as per package labeling).</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru351

Topic: Non-Preferred Intra-Articular Hyaluronic Acid Derivatives:
- 1% sodium hyaluronate (Triluron)
- high molecular weight hyaluronan (Hymovis)
- high molecular weight hyaluronan (Orthovisc)
- sodium hyaluronate (Durolane)
- sodium hyaluronate (Gel-One)
- sodium hyaluronate (Gel-Syn 3)
- sodium hyaluronate (GenVisc 850)
- sodium hyaluronate (Monovisc)
- sodium hyaluronate (Hyalgan)
- sodium hyaluronate (Supartz)
- sodium hyaluronate (Trivisc)
- sodium hyaluronate (Visco 3)

Date of Origin: May 09, 2014

Committee Approval Date: July 16, 2021

Next Review Date: January 2022

Effective Date: October 1, 2021

IMPORTANT REMINDER

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The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Hyaluronic acid derivatives are injected directly into the knee joint to help improve the pain associated with osteoarthritis of the knee.

PLEASE NOTE: Preferred Intra-Articular Hyaluronic Acid (IAHA) products do not require pre-authorization. The preferred IAHA products are Synvisc, Synvisc-One, and Euflexxa.
Policy/Criteria

Most contracts require pre-authorization approval of non-preferred intra-articular hyaluronic acid derivatives prior to coverage.

I. Continuation of therapy (COT): Non-preferred intra-articular hyaluronic acid derivatives may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Non-preferred intra-articular hyaluronic acid derivatives may be considered medically necessary when criteria A and B below are met.

A. Treatment with both of the following has been ineffective, contraindicated, or not tolerated:
   1. Euflexxa (1% sodium hyaluronate).
   2. Synvisc or Synvisc-One (hylan G-F 20).

AND

B. The member has a documented diagnosis of osteoarthritis of the knee.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence pharmacy services considers intra-articular hyaluronic acid derivatives to be provider-administered products.

B. Initial authorization:

   1. When pre-authorization is approved, intra-articular hyaluronic acid derivatives may be authorized in quantities of up to 2 treatment courses per knee for the initial 1-year period according to the chart below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Number of Injections Per Treatment Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durolane (sodium hyaluronate)</td>
<td>1 dose per knee</td>
</tr>
<tr>
<td>Gel-One (sodium hyaluronate)</td>
<td>1 dose per knee</td>
</tr>
<tr>
<td>Gel-Syn-3 (sodium hyaluronate)</td>
<td>3 doses per knee</td>
</tr>
<tr>
<td>GenVisc 850 (sodium hyaluronate)</td>
<td>5 doses per knee</td>
</tr>
<tr>
<td>Hyalgan (sodium hyaluronate)</td>
<td>5 doses per knee</td>
</tr>
<tr>
<td>Hymovis (high molecular weight</td>
<td>2 doses per knee</td>
</tr>
<tr>
<td>Viscoelastic Hyaluronan)</td>
<td></td>
</tr>
<tr>
<td>Monovisc (sodium hyaluronate)</td>
<td>1 dose per knee</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
<table>
<thead>
<tr>
<th>Product Name</th>
<th>Number of Injections Per Treatment Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthovisc (high molecular weight hyaluronan)</td>
<td>4 doses per knee</td>
</tr>
<tr>
<td>Supartz/Supartz FX (sodium hyaluronate)</td>
<td>5 doses per knee</td>
</tr>
<tr>
<td>Trivisc (sodium hyaluronate)</td>
<td>3 doses per knee</td>
</tr>
<tr>
<td>Visco-3 (sodium hyaluronate)</td>
<td>3 doses per knee</td>
</tr>
<tr>
<td>Triluron (sodium hyaluronate)</td>
<td>3 doses per knee</td>
</tr>
</tbody>
</table>

**C. Continued authorization:**

1. After the initial authorization, up to 2 courses over a one-year period may be considered medically necessary if there is clinical documentation supporting clinical benefit from treatment, as defined by at least one of the following:
   a. There is an improvement in pain or functional ability.
   b. There has been a reduction in the use or frequency of analgesics or anti-inflammatory medication.

2. Subsequent authorizations may be reviewed at least every 12 months to confirm that current medical necessity criteria are met, and that the medication is effective.

**IV. Non-preferred intra-articular hyaluronic acid derivatives are considered not medically necessary for the following uses:**

A. Osteoarthritis in joints other than the knee.
B. Skin wrinkles or other cosmetic indications.

**V. Non-preferred intra-articular hyaluronic acids are considered investigational when used for all other conditions, including but not limited to:**

A. Temporomandibular joint degenerative disorders.
B. Trigger finger.
Position Statement

- Hyaluronic acids are used as viscosupplementation and are injected directly into the knee joint to improve lubrication and reduce the pain associated with osteoarthritis of the knee.

- Given the inconclusive evidence for safety and efficacy, as well as inconsistent support from evidence-based clinical guidelines, the use of non-preferred hyaluronic acids is limited to patients with significant functional impairment that impacts quality of life or employment who have tried and failed conservative management strategies (analgesics and physical therapy/exercise) and/or intra-articular corticosteroid injections.

* Standard therapies for treatment of knee pain related to arthritis include oral NSAIDs (such as ibuprofen, naproxen, or diclofenac), intra-articular corticosteroid injections, and physical therapy/exercises. These therapies are effective for providing pain relief for the vast majority of patients.

* Hyaluronic acids are not recommended by the 2013 American Academy of Orthopedic Surgeons (AAOS) guidelines for management of osteoarthritis of the knee. The strength of this recommendation is characterized as “strong” as it is based on multiple high-quality studies. [1]

* 2019 American College of Rheumatology (ACR)/Arthritis Foundation (AF) guidelines conditionally recommend against the use of hyaluronic acids for osteoarthritis of the knee. The recommendation is based on lack of benefit in high-quality studies and the potential for harm associated with injections. The authors of a systematic review conducted as part of ACR/AF guideline development stated that benefit is restricted to low-quality studies and that in higher quality studies the benefit diminishes compared to saline injections alone. [2]

* 2019 Guidelines by the Osteoarthritis Research Society International (OARSI) conditionally recommend the use of intra-articular hyaluronic acid when core treatments (exercise programs, dietary weight management, etc.) and pharmacologic therapies have been ineffective. [3]

* 2020 Veteran’s Administration (VA) guidelines suggest offering intra-articular hyaluronic acid derivatives for patients with persistent pain due to osteoarthritis of the knee inadequately relieved by other interventions. Although the recommendation is in favor of use, the guideline working group noted that the quality of evidence is low. [4]

- Several intra-articular hyaluronic acid products are available and there is little comparative evidence to differentiate the various products. Euflexxa, Synvisc, and Synvisc-One offer the best value for Regence members.

- The use of intra-articular hyaluronic acids for osteoarthritis of the hip is considered not medically necessary. The majority of guidelines strongly or conditionally recommend against use in the hip due to high-quality evidence demonstrating a lack of benefit. [2, 3] VA guidelines also noted the use of intra-articular hyaluronic acids in the hip have a higher risk profile due to proximity to the neurovascular structures. [4]
There is inadequate evidence to support the use of hyaluronic acids in temporomandibular joint degenerative disorders or trigger finger.

**Clinical Efficacy**

- Hyaluronic acids have not been proven in reliable clinical studies to be more effective than non-pharmacologic or generic analgesics such as acetaminophen and NSAIDs. The overall body of evidence is conflicting and additional high-quality studies are needed.
  * Systematic reviews of randomized controlled trials evaluating viscosupplementation in patients with osteoarthritis of the knee conclude that there are low-quality data available to determine efficacy and safety.
  * Clinical trials studying the effect of viscosupplementation on knee pain and functional outcomes have reported inconsistent results. Intra-articular injections are associated with a robust placebo-response; it is unclear if hyaluronic acid differs from placebo in a clinically meaningful way.
  * Several studies have reported no improvement in pain or mobility compared to placebo, simple analgesics, or exercise. [7-10]
  * Despite these limitations, authors of the Veteran’s Administration (VA) guideline on knee osteoarthritis noted that large systemic reviews have shown some benefit and despite downgrades in the quality of evidence due to risk of bias, the outcomes were consistent across study groups. Thus, they have a weak recommendation in favor of offering hyaluronic acids as a treatment option. [4]
  * A 2015 Agency for Healthcare Research and Quality (AHRQ) review of clinical trials found no significant association between treatment with HLA and time to total knee arthroplasty (TKA). [5 11] The authors concluded that there is insufficient data to make any conclusions regarding the effect of HLA treatment on time to TKA.

- There is no reliable evidence, based on two comparative trials identified, to differentiate between hyaluronic acid products used for viscosupplementation in terms of safety or efficacy.
  * One randomized controlled trial in 660 patients with osteoarthritis of the knee did not demonstrate a difference in efficacy or safety of Synvisc compared with Orthovisc. [12]
  * A randomized trial comparing the effectiveness of Synvisc and Hyalgan is unreliable due to uncertain blinding which may have influenced patient reported outcomes. [13]

**Guidelines**

- The majority of guidelines offer conflicting recommendations with regard to intra-articular hyaluronic acids for the knee. Guidelines range from strong recommendations against use to conditional or weak recommendations in favor of use. Despite conflicting recommendations on hyaluronic acids, all guidelines recommend the use of conservative management strategies such as physical therapy, exercise, weight management, and NSAIDs.
- Systematic reviews have concluded that there is limited evidence to support subsequent treatment courses with hyaluronic acids; however, individual patients may benefit from additional courses of hyaluronic acids. [1 14] While there are conflicting recommendations among guidelines, the highest quality evidence supports minimal or no benefit.

- American College of Rheumatology (ACR)/Arthritis Foundation (AF) guidelines conditionally recommend against the use of hyaluronic acids for osteoarthritis of the knee. [2] The recommendation is based on a systematic review that concluded that the evidence supporting efficacy is limited to low-quality trials. When the analysis was limited to higher quality studies, the benefit of hyaluronic acid injections approached zero. Thus, the ACR/AF concluded that the best evidence does not demonstrate a benefit and there may be harms associated with the injections.

  * Conditional recommendations are used when the evidence is of low or very low-quality or the balances of risks and harms is close. Conditional recommendations meant to describe that the majority of informed patients would choose to follow the recommended course of action, but some would not.

  * ACR/AF Guidelines strongly recommend the use of intra-articular glucocorticoid injections for knee osteoarthritis and conditionally recommends them over other intra-articular injections (including hyaluronic acid). The recommendation is based on high-quality evidence for short-term efficacy. The guidelines do acknowledge that steroid injections may contribute to cartilage loss, but the clinical significance is unclear as change in cartilage thickness has not been shown to be associated with a worsening in pain, functioning, or other radiographic features. [2]

- The American Academy of Orthopedic Surgeons (AAOS) cannot recommend the use of hyaluronic acid for patients with symptomatic osteoarthritis of the knee. The AAOS graded the recommendation as “Strong,” which means that the strength of the supporting evidence is high. Guidelines state that “Practitioners should follow a Strong recommendation unless a clear and compelling rationale for an alternative approach is present.” [1]

  * The AAOS position is based on assessment of the clinical meaningfulness of the result. The AAOS analysis concluded that the point estimate for the improvement in pain and function was less than half the pre-defined magnitude for clinically meaningful improvement.

  * While there may be differences in efficacy based on the molecular weight of the hyaluronic acid, meta-analyses supporting the AAOS clinical guidelines found that there was no difference between medium- and high-molecular weight hyaluronic acid. The guideline recognized that, while there is the potential for a difference to exist, there is not yet sufficient evidence to recommend use of high molecular weight hyaluronic acid given the aggregate lack of efficacy.[1]
Osteoarthritis Research Society International (OARSI) guidelines conditionally recommend the use of hyaluronic acids after non-pharmacologic and NSAIDs/acetaminophen have been tried. The recommendations were also based on systematic reviews and meta-analyses of the available evidence though the guideline did account for differences in efficacy in high versus low-quality studies or address the impact of publication bias.\[3\]

2020 Veteran's Administration (VA) guidelines suggest offering intra-articular hyaluronic acid derivatives for patients with persistent pain due to osteoarthritis of the knee inadequately relieved by other interventions. Although the recommendation is in favor of use, the guideline working group noted that the quality of evidence is low. \[4\]

SAFETY

The most common adverse events reported with hyaluronic acids include joint pain, stiffness and swelling, as well as injection site reactions. \[15-22\]

NOT MEDICALLY NECESSARY USES

The use of intra-articular hyaluronic acids for osteoarthritis of the hip is considered not medically necessary.

* 2019 ACR/AF Guidelines strongly recommend against the use of hyaluronic acid for the treatment of hip OA due to high-quality evidence for lack of benefit.\[2\]

* 2020 VA Guidelines conditionally recommend against the use of intra-articular hyaluronic acids in the hip due to high-quality evidence demonstrating a lack of benefit and safety concerns associated with the administration, specially the proximity to neurovascular structures. \[4\]

INVESTIGATIONAL USES

Use in Joints Other than the Knee

Hyaluronic acids have been studied in the treatment of osteoarthritis of joints other than the knee, including the hip, shoulder, and ankle.

* Small studies in patients with osteoarthritis of the ankle demonstrated that hyaluronic acid may be an effective treatment option; however, several larger, well-controlled trials have concluded that hyaluronic acid is not effective in this setting (no different than saline). \[19-22\]

* A randomized trial in patients with osteoarthritis of the shoulder did not demonstrate a significant difference in pain on movement between patients treated with sodium hyaluronate or placebo. \[23\]

* 2019 ACR/AF Guidelines strongly recommend against the use of hyaluronic acid for the treatment of hip OA due to high-quality evidence for lack of benefit.\[2\]
**Temporomandibular Joint (TMJ) degenerative disorders**

- Several small studies have evaluated hyaluronic acids in the treatment of symptoms of TMJ degenerative disorders (pain, range-of-motion, chewing efficiency). Larger, well-controlled studies are needed to confirm the benefit of hyaluronic acids and to determine the optimal frequency, dose, and product.[24-27]

**Trigger finger**

- One small randomized, controlled trial (N=36) evaluated patients with a diagnosis of trigger finger. Patients were randomized to hyaluronic acid or steroid injections, after the months of follow-up the percent of patients without triggering effect was numerically lower in the hyaluronic acid group, but not statistically significant. While promising the results must be confirmed in larger studies. Additionally, the optimal frequency, dose, and hyaluronic acid product has not been determined.[28]

### Cross References

Intra-articular Hyaluronan Injections for Osteoarthritis, BlueCross BlueShield Association Medical Policy, 2.01.31, Issue 05:2019

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<td>M17.0</td>
<td>Bilateral primary osteoarthritis of knee</td>
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<td>J7321</td>
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<td>J7318</td>
<td>Hyaluronan or derivative, Durolane, for intra-articular injection, 1 mg</td>
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<td>J7323</td>
<td>Hyaluronan or derivative, Euflexxa, for intra-articular injection, per dose</td>
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<td>Hyaluronan or derivative, Orthovisc, for intra-articular injection, per dose</td>
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<td>J7332</td>
<td>Hyaluronan or derivative, Triluron, for intra-articular injection, per dose</td>
</tr>
</tbody>
</table>
References


5. Newberry SJ, Fitzgerald JD, Maglione MA, et al. Systematic Review for Effectiveness of Hyaluronic Acid in the Treatment of Severe Degenerative Joint Disease (DJD) of the Knee. 2015. '26866204' 26866204


18. Gel-Syn [Prescribing Information]. Lodi, Italy: BSA Farmaceutici Italia; May 2014.


## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| **7/16/2021** | Effective 10/1/2021:  
  • Preferred intra-articular hyaluronic acid (IAHA) products will not require pre-authorization.  
  • Revised policy to allow coverage of non-preferred IAHA products in patients with osteoarthritis of the knee who have tried and failed all preferred IAHA products.  
  • Products may be authorized for up to 1 year initially. Re-authorization requires documentation of ongoing clinical benefit. |
| **4/22/2020** | No criteria changes with this annual update. Policy position statements were updated to include updated guidelines from the American College of Rheumatology/Arthritis Foundation and Osteoarthritis Research Society International. |
| **1/22/2020** | • Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
  • Added sodium hyaluronate (Trivisc, Durolane, and Triluron) to policy. |
| **1/31/2019** | No criteria changes with this annual update. |
| **12/14/2018** | No criteria changes with this annual update. |
| **12/8/2017** | No criteria changes with this annual update. Added sodium hyaluronate (Durolane) to policy. |
| **4/14/2017** | No criteria changes with this annual update. |
| **4/8/2016** | Added temporomandibular joint disorders and trigger finger as investigational uses |
| **05/09/2014** | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual  
Topic: Cyramza, ramucirumab  
Committee Approval Date: January 20, 2021  
Effective Date: February 15, 2021  

Policy No: dru355  
Date of Origin: July 11, 2014  
Next Review Date: January 2022

IMPORTANT REMINDER  
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Ramucirumab (Cyramza) is an intravenously infused recombinant human monoclonal antibody that is used for the treatment of various cancers. It works by blocking the formation of blood vessels, thereby preventing the tumor from getting essential nutrients that it needs for growth.
Policy/Criteria

Most contracts require pre-authorization approval of ramucirumab (Cyramza) prior to coverage.

I. Continuation of therapy (COT): Ramucirumab (Cyramza) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Ramucirumab (Cyramza) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, C, or D below is met:

A. A diagnosis of metastatic or unresectable, locally advanced gastric cancer or esophageal junction (GEJ) adenocarcinoma when there was disease progression after prior treatment with fluoropyrimidine- or platinum-containing chemotherapy (see Appendix 1), or therapy with these regimens was not tolerated or is contraindicated.

OR
B. A diagnosis of squamous or non-squamous metastatic non-small cell lung cancer (NSCLC) when criteria 1 and 2 below are met:
   1. There has been progression of disease after one prior treatment with a platinum-containing regimen (see Appendix 1), unless either criterion a or b below is met:
      a. If the NSCLC is ALK-positive, there has been progression of disease following treatment with an ALK inhibitor. (see Appendix 2)
      OR
      b. If the NSCLC is positive for an epidermal growth factor receptor (EGFR) exon 19 deletion or exon 21 (L858R) substitution mutation, there has been progression of disease following treatment with an EGFR inhibitor. (see Appendix 2)

   AND

   2. Ramucirumab (Cyramza) is given in combination with a taxane. (see Appendix 1)

   OR

C. A diagnosis of metastatic colorectal cancer when criteria 1 and 2 below are met:
   1. There has been progression of disease on or after prior therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine. (See Appendix 3 for example regimens)

   AND

   2. Ramucirumab (Cyramza) is given in combination with FOLFIRI (leucovorin, fluorouracil, and irinotecan)

   OR

D. A diagnosis of metastatic hepatocellular carcinoma (HCC) when criteria 1 through 3 below are met:
   1. A documented alpha fetoprotein of ≥ 400 ng/mL.

   AND

   2. There has been progression of disease on, or intolerance to, at least one prior systemic HCC regimen. (refer to Appendix 5)

   AND

   3. Ramucirumab (Cyramza) will be used as a monotherapy.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider ramucirumab (Cyramza) to be a self-administered medication.

B. When pre-authorization is approved, ramucirumab (Cyramza) may be authorized as follows:
1. Gastric cancer, esophageal junction (GEJ) adenocarcinoma, colorectal cancer (CRC), or hepatocellular carcinoma (HCC): up to 8 mg/kg every two weeks until disease progression.

2. Non-small cell lung cancer (NSCLC): up to 10 mg/kg every 21 days until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Ramucirumab (Cyramza) is considered not medically necessary for the first-line treatment of metastatic NSCLC with EGFR exon 19 deletions or exon 21 (L858R) mutations.

V. Ramucirumab (Cyramza) is considered investigational when used for all other conditions, including but not limited to:
   A. Brain cancer
   B. Breast cancer
   C. Prostate cancer
   D. Renal cell carcinoma (RCC)

VI. Ramucirumab (Cyramza) is considered investigational when used concomitantly with any other targeted therapy, including, but not limited to, afatinib (Gilotrif), bevacizumab, cetuximab (Erbitux), ceritinib (Zykadia), crizotinib (Xalkori), gefitinib (Iressa), nivolumab (Opdivo), panitumumab (Vectibix), regorafenib (Stivarga), sorafenib (Nexavar), or ziv-aflibercept (Zaltrap).

Position Statement
- Ramucirumab (Cyramza), a human IgG1 monoclonal antibody that binds to vascular endothelial growth factor (VEGF) receptors.
- The intent of this policy is to cover ramucirumab (Cyramza) for the indications and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- Ramucirumab (Cyramza) is approved:
  * As a monotherapy or in combination with paclitaxel for the treatment of advanced gastric cancer or advanced gastro-esophageal junction (GEJ) adenocarcinoma after prior treatment with front-line fluoropyrimidine- or platinum-containing chemotherapy.
  * In combination with erlotinib, for first-line treatment of metastatic non-small cell lung cancer with epidermal growth factor receptor (EGFR) exon 19 deletions or exon 21 (L858R) mutations.
* In combination with docetaxel for the treatment of metastatic non-small cell lung cancer (NSCLC) after prior treatment with front-line platinum-based chemotherapy (with or without maintenance therapy). Patients with EGFR or ALK genomic tumor aberrations should have disease progression on FDA-approved therapy for these aberrations prior to receiving ramucirumab (Cyramza).

* For metastatic colorectal cancer when there has been disease progression on or after prior therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine. Ramucirumab (Cyramza) is given in combination with FOLFIRI. In the pivotal clinical trial in patients with locally advanced or metastatic gastric cancer or GEJ adenocarcinoma, a small but statistically significant improvement in overall survival (~5.5 weeks) was reported with ramucirumab (Cyramza) relative to best supportive care in the second-line, recurrent disease setting.

* For advanced hepatocellular carcinoma (HCC), as a single agent when there is an alpha-fetoprotein (AFP) level ≥ 400 ng/mL and disease progression on, or intolerance to, front-line sorafenib (Nexavar). It was approved in this setting based on a single, placebo-controlled trial.

- In the pivotal clinical trial for second-line NSCLC, a small but statistically significant improvement in overall survival (~5.6 weeks) was reported with ramucirumab (Cyramza) in combination with docetaxel relative to placebo after progression on front-line therapy.

- In the pivotal clinical trials for metastatic colorectal cancer, ramucirumab (Cyramza) plus FOLFIRI demonstrated a 1.6-month overall survival advantage compared to placebo plus FOLFIRI in patients who had disease progression on or after prior therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine.

- Ramucirumab (Cyramza) is considered not medically necessary for the first-line treatment of EGFR mutated NSCLC. In the pivotal trial in this setting, combination therapy with ramucirumab and erlotinib improved progression free survival by ~7 months. However, PFS is not a clinically relevant endpoint in metastatic NSCLC as it has not been found to accurately predict overall survival or quality of life. There is currently no evidence that the combination of ramucirumab (Cyramza) and erlotinib provides any clinically meaningful benefit over erlotinib alone, such as improved overall survival or quality of life. Furthermore, combination therapy adds toxicity compared to erlotinib alone. Rates of serious adverse events were higher in patients who received combination therapy.

- Ramucirumab (Cyramza) in combination is covered in patients with NSCLC who progressed after treatment with platinum-based chemotherapy.

- A single placebo-controlled trial compared ramucirumab (Cyramza) with best supportive care (BSC) in elderly patients with advanced HCC with AFP levels ≥ 400 ng/mL who had disease progression on first-line sorafenib (Nexavar). The majority of subjects had cancer that had spread beyond the liver. Subjects on ramucirumab (Cyramza) had a one-month longer median survival than those receiving BSC.

- There is interest in studying ramucirumab (Cyramza) in other cancers, such as breast cancer, based on its pharmacology; however, there is currently no published, peer-reviewed evidence that supports clinical benefit in other cancers at this time.
- Ramucirumab (Cyramza) may be covered for the doses studied and shown to be safe and effective (as detailed in the coverage criteria), until disease progression.
- The prescribing information for ramucirumab (Cyramza) includes a boxed warning describing an increased risk of hemorrhage, gastrointestinal perforation, and impaired wound healing. Death from hemorrhage has been reported.
- Common side effects include hypertension and diarrhea. Infusion reactions may also occur. Premedication with intravenous diphenhydramine is recommended. Dexamethasone and acetaminophen may be added for more severe infusion reactions.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

Advanced Gastric Cancers

The body of evidence for advanced gastric cancers includes two randomized controlled trials (RCTs): one using ramucirumab (Cyramza) as a single agent and one using ramucirumab (Cyramza) in combination with chemotherapy.

- A published, randomized, double-blind, placebo-controlled trial ( REGARD) evaluated the efficacy of ramucirumab (Cyramza) relative to placebo in patients with previously treated advanced gastric or gastro-esophageal junction (GEJ) adenocarcinoma. [1]
  * The study enrolled 355 patients who had failed prior therapy with a fluoropyrimidine- or platinum-containing chemotherapy regimen.
  * There was a modest improvement in overall survival in patients receiving ramucirumab (Cyramza) versus best supportive care (5.2 months and 3.8 months, respectively).

- An unpublished, randomized, double-blind, placebo-controlled trial (RAINBOW) evaluated the efficacy of ramucirumab (Cyramza) plus paclitaxel versus paclitaxel alone in patients with previously treated advanced gastric or GEJ adenocarcinoma. [2]
  * The study enrolled 665 patients who had failed prior therapy with a fluoropyrimidine- or platinum-containing chemotherapy regimen.
  * There was a modest improvement in overall survival in patients receiving ramucirumab (Cyramza) plus paclitaxel versus those receiving paclitaxel alone (9.6 months and 7.4 months, respectively).

- There is currently no evidence evaluating the efficacy of ramucirumab (Cyramza) in the first-line advanced gastric or GEJ adenocarcinoma setting.
The National Comprehensive Cancer Network (NCCN) gastric cancer guideline lists ramucirumab (Cyramza) as a category 1 option for the second-line treatment of metastatic or locally advanced gastric cancer or GEJ adenocarcinoma when used as monotherapy or in combination with paclitaxel. [3,4]

**EGFR Mutated Non-Small Cell Lung Cancer (NSCLC)**

- A randomized, double-blind, placebo-controlled (RELAY study) evaluated the efficacy of ramucirumab (Cyramza) in combination with erlotinib versus erlotinib alone as first-line therapy in patients with stage IV NSCLC with EGFR exon 19 deletions or exon 21 (L858R) mutations. [5]

- Median investigator assessed PFS 19.4 months in the ramucirumab/erlotinib group compared to 12.4 months in the erlotinib group (HR 0.59, 95% CI 0.46 to 0.76).

- PFS is not a clinically relevant endpoint in metastatic NSCLC as it has not been found to accurately predict overall survival or quality of life.

- There is currently no evidence that the combination of ramucirumab and erlotinib provides any clinically meaningful benefit over erlotinib alone, such as improved overall survival (OS) or quality of life. OS data from the pivotal front-line trial will be evaluated in the future after the data matures.

- The combination of ramucirumab (Cyramza) and erlotinib also added toxicity compared to erlotinib alone. Rates of adverse events, including diarrhea (75% versus 65%), hypertension (50% versus 40%), increased ALT (49% versus 35%), increased AST (49% versus 33%), stomatitis (46% versus 36%), decreased appetite (32% versus 19%), dysgeusia (23% versus 12%), and weight loss (19% versus 6%) were higher with combination therapy.

**Non-Small Cell Lung Cancer (NSCLC)**

- A published, randomized, double-blind, placebo-controlled trial (REVEL study) evaluated the efficacy of ramucirumab (Cyramza) plus docetaxel versus placebo plus docetaxel as second-line therapy in patients with stage IV NSCLC. [6]

  * The study enrolled 1,253 patients whose disease had progressed during or after first-line platinum-based chemotherapy with or without bevacizumab or maintenance therapy.

  * Patients whose only previous therapy for advanced or metastatic disease was EGFR tyrosine kinase inhibitor monotherapy were excluded from the study.

  * There was a modest improvement in overall survival in patients receiving ramucirumab (Cyramza) plus docetaxel versus those receiving docetaxel alone (10.5 months and 9.1 months, respectively).

- There is currently no evidence evaluating the efficacy of ramucirumab (Cyramza) beyond the second-line setting.

- The NCCN NSCLC guideline lists ramucirumab (Cyramza) in combination with docetaxel as a category 2A option for metastatic disease in the second-line setting. [7]
**Metastatic Colorectal Cancer**

- A published, randomized, double-blind, placebo-controlled trial (RAISE study) evaluated the efficacy of ramucirumab (Cyramza) versus placebo in combination with second-line FOLFIRI (leucovorin, fluorouracil, and irinotecan) for metastatic colorectal cancer in patients with disease progression during or after first-line therapy with bevacizumab, oxaliplatin, and a fluoropyrimidine. [8]

- The study included 1,072 patients who had disease progression during or within 6 months of the last dose of first-line therapy. The primary endpoint was overall survival (OS).

- Median OS was 13.3 months (95% CI 12.4 – 14.5) for ramucirumab (Cyramza)-treated patients compared to 11.7 months (95% CI 10.8 – 12.7) for placebo-treated patients. However, the clinical significance of a 1.6-month survival advantage in colorectal cancer is uncertain.

- The NCCN colon cancer and rectal cancer guidelines include ramucirumab (Cyramza) in combination with FOLFIRI as a category 2A recommendation for therapy after first progression. Bevacizumab plus FOLFIRI is the preferred option in this setting. [9,10]

**Hepatocellular carcinoma (HCC)**

- In a phase 3 study (REACH) in 565 patients with previously treated hepatocellular carcinoma, treatment with second-line ramucirumab (Cyramza) failed to improve overall survival over best supportive care. [11,12]

- However, a subsequent trial (REACH-2) limited to patients with elevated AFP levels found a small improvement in OS (one month). The placebo-controlled trial compared ramucirumab with best supportive care (BSC) in elderly patients with advanced HCC. [13]

  * All patients had AFP levels > 400 ng/ml and disease progression on first-line sorafenib.

  * The majority of subjects had cancer that had spread beyond the liver. The trial enrolled patients with Child-Pugh Class A disease, BCLC stage B and no longer amenable to locoregional therapy, or BCLC stage C.

  * Subjects on ramucirumab (Cyramza) had a small, one-month improvement in median survival than those receiving BSC (8.5 versus 7.3 months).

- Ramucirumab (Cyramza) is a NCCN category 1 recommendation as a subsequent-line treatment option for advanced HCC when the AFP level is ≥ 400 ng/mL. [14]

**Other Cancer Settings and Conditions**

- There are ongoing clinical trials designed to evaluate the efficacy of ramucirumab (Cyramza) in brain cancer, prostate cancer, and renal cell carcinoma; however, there is currently no clinical evidence to support its use in these conditions. [15]

- In a phase 3 study in patients with human epidermal growth factor receptor 2 (HER2)-negative, unresectable, locally recurrent or metastatic breast cancer, the addition of ramucirumab (Cyramza) to docetaxel failed to improve overall survival over docetaxel alone. [16]
Safety [17]
- The prescribing information for ramucirumab (Cyramza) includes a boxed warning describing an increased risk of hemorrhagic events, gastrointestinal perforation, and impaired wound healing with ramucirumab (Cyramza). Some cases of hemorrhage have resulted in death.
- The most common adverse events reported with ramucirumab (Cyramza) as a single agent include hypertension and diarrhea.
- The most common adverse reactions reported with ramucirumab (Cyramza) plus paclitaxel include fatigue, neutropenia, diarrhea, and epistaxis. When used in combination with docetaxel, the most common adverse reactions reported include neutropenia, fatigue/asthenia, and stomatitis/mucosal inflammation.
- The most common adverse reactions reported with ramucirumab (Cyramza) plus erlotinib include infections, hypertension, diarrhea, stomatitis, proteinuria, alopecia, epistaxis, peripheral edema, headache, and gastrointestinal hemorrhage. The majority of adverse events occurred at a greater frequency with combination therapy compared to erlotinib alone.
- Infusion-related reactions are also possible. Premedication with diphenhydramine is recommended. For more severe reactions, dexamethasone and acetaminophen may be used.
- Similar to other VEGF inhibitors, ramucirumab (Cyramza) may cause gastrointestinal perforation, impaired wound healing, and clinical deterioration in patients with cirrhosis.

Dosing considerations [17]
- The recommended dose of ramucirumab (Cyramza) for gastric cancer, esophageal junction adenocarcinoma, hepatocellular carcinoma, and metastatic colorectal cancer is 8 mg/kg intravenously every two weeks until disease progression or unacceptable toxicity.
- For NSCLC in combination with docetaxel, the recommended dose of ramucirumab (Cyramza) is 10 mg/kg intravenously on day 1 of a 21-day cycle prior to docetaxel infusion until disease progression or unacceptable toxicity.
- For EGFR mutated NSCLC in combination with erlotinib, the recommended dose of ramucirumab (Cyramza) is 10 mg/kg intravenously every two weeks, until disease progression or unacceptable toxicity.

Appendix 1: Platinum, Taxane and Fluoropyrimidine Medications

<table>
<thead>
<tr>
<th>Platinum medications</th>
<th>Fluoropyrimidine medications</th>
<th>Taxane medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisplatin</td>
<td>Capecitabine (Xeloda)</td>
<td>Cabazitaxel (Jevtana)</td>
</tr>
<tr>
<td>Carboplatin</td>
<td>Flouxuridine</td>
<td>Docetaxel</td>
</tr>
<tr>
<td>Oxaliplatin (Eloxatin)</td>
<td>Fluorouracil (5-FU, Adrucil)</td>
<td>Paclitaxel nab-paclitaxel (Abraxane)</td>
</tr>
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</table>
Appendix 2: EGFR and ALK Inhibitors Used in the Treatment of Metastatic Lung Cancer

<table>
<thead>
<tr>
<th>EGFR Inhibitors</th>
<th>ALK Inhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>erlotinib (Tarceva)</td>
<td>crizotinib (Xalkori)</td>
</tr>
<tr>
<td>afatinib (Gilotrif)</td>
<td>ceritinib (Zykadia)</td>
</tr>
<tr>
<td>gefitinib (Iressa)</td>
<td>alectinib (Alecensa)</td>
</tr>
<tr>
<td>osimertinib (Tagrisso)</td>
<td>brigatinib (Alunbrig)</td>
</tr>
<tr>
<td>dacomitinib (Vizimpro)</td>
<td>lorlatinib (Lorbrena)</td>
</tr>
</tbody>
</table>

Appendix 3: Example Chemotherapy Regimens for Metastatic Colorectal Cancer Containing bevacizumab, oxaliplatin, and a fluoropyrimidine

<table>
<thead>
<tr>
<th>Regimen Name</th>
<th>Included Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>mFOLFOX6 + bevacizumab</td>
<td>Oxaliplatin, leucovorin, fluorouracil (5-FU), bevacizumab</td>
</tr>
<tr>
<td>CapeOx + bevacizumab</td>
<td>Oxaliplatin, capecitabine, bevacizumab</td>
</tr>
<tr>
<td>FOLFIRI + bevacizumab</td>
<td>Irinotecan, leucovorin, fluorouracil (5-FU), bevacizumab</td>
</tr>
<tr>
<td>FOLFOXIRI + bevacizumab</td>
<td>Irinotecan, oxaliplatin, leucovorin, fluorouracil (5-FU), bevacizumab</td>
</tr>
</tbody>
</table>

Appendix 4: Child-Pugh Classification Of Severity Of Liver Disease

<table>
<thead>
<tr>
<th>Child-Pugh Classification</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: well-compensated disease</td>
<td>5 to 6</td>
</tr>
<tr>
<td>B: significant functional compromise</td>
<td>7 to 9</td>
</tr>
<tr>
<td>C: decompensated disease</td>
<td>10 to 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascites</td>
<td>Absent</td>
<td>Slight</td>
<td>Moderate</td>
</tr>
<tr>
<td>Bilirubin (mg/dL)</td>
<td>&lt; 2</td>
<td>2 to 3</td>
<td>&gt; 3</td>
</tr>
<tr>
<td>Albumin (g/dL)</td>
<td>&gt; 3.5</td>
<td>2.8 to 3.5</td>
<td>&lt; 2.8</td>
</tr>
<tr>
<td>Prothrombin Time</td>
<td>Seconds over control</td>
<td>1 to 3</td>
<td>4 to 6</td>
</tr>
<tr>
<td>INR</td>
<td>&lt; 1.7</td>
<td>1.8 to 2.3</td>
<td>&gt; 2.3</td>
</tr>
<tr>
<td>Encephalopathy</td>
<td>None</td>
<td>Grade 1 to 2</td>
<td>Grade 3 to 4</td>
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</table>
Appendix 5: First-line Regimens Used in the Treatment of Hepatocellular Carcinoma [14]

<table>
<thead>
<tr>
<th>NCCN Front-Line HCC Regimens [category 1 recommendations]</th>
</tr>
</thead>
<tbody>
<tr>
<td>sorafenib (Nexavar), for Child-Pugh Class A disease (category 2A for class B7)</td>
</tr>
<tr>
<td>lenvatinib (Lenvima), for Child-Pugh Class A disease</td>
</tr>
<tr>
<td>atezolizumab (Tecentriq) + bevacizumab for Child-Pugh Class A disease</td>
</tr>
</tbody>
</table>

Cross References

Molecular Analysis for Targeted Therapy of Non-Small Cell Lung Cancer (NSCLC), Medical Policy Manual, Genetic Testing Policy No. 56

Cabozantinib-containing medications, Medication Policy Manual, Policy No. dru290

Erbitux, cetuximab, Medication Policy Manual, Policy No. dru187

Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500

Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367

Lenvima, lenvatinib, Medication Policy Manual, Policy No. dru398

Nexavar, sorafenib, Medication Policy Manual, Policy No. dru134

Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390

Stivarga, regorafenib, Medication Policy Manual, Policy No. dru284

Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463

Zaltrap, ziv-aflibercept, Medication Policy Manual, Policy No. dru279

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<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J9308</td>
<td>injection, ramucirumab (Cyramza), 5 mg</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
References


*Revision History*

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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</thead>
</table>
| 1/20/2021     | • COT language was updated (No change to intent of coverage criteria)  
                • The list of acceptable prerequisite therapies under the HCC criteria (criterion II.D.2.) was expanded to include additional medication regimens because sorafenib (Nexavar) is no longer the only available front-line therapy recommended for use in this setting. |
| 10/28/2020    | Added first-line treatment of EGFR mutated NSCLC as not medically necessary. |
| 6/15/2020     | Removed references to brand Avastin from policy, to account for upcoming changes in biosimilars policy (dru620). |
| 1/22/2020     | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |
| 7/24/2019     | Add coverage criteria for advanced HCC, based on new evidence and indication (effective 8/15/2019). |
| 1/31/2019     | No changes to coverage criteria with this annual update. |
| 6/15/2018     | • Coverage criteria were updated to include *any* EGFR or ALK inhibitor as satisfying the condition for prior therapy in lung cancer to recognize the additional products now available to treat these mutations.  
                • The authorization period was clarified to state that ramucirumab can be covered in the stated doses ‘until disease progression’. This was always the case. |
| 9/8/2017      | No changes to coverage criteria with this annual update. |
| 9/9/2016      | No changes to coverage criteria with this annual update |
| 07/11/2014    | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Belinostat (Beleodaq), a histone deacetylase (HDAC) inhibitor, is a cancer medication used to treat peripheral T-cell lymphoma (PTCL), a rare non-Hodgkin’s lymphoma. It is given via intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of belinostat (Beleodaq) prior to coverage.

I. Continuation of therapy (COT): Belinostat (Beleodaq) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naive patients): Belinostat (Beleodaq) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A, B and C below are met.

A. Documentation of a diagnosis of peripheral T-cell lymphoma (PTCL).

   AND

B. At least two prior therapies for PTCL were not effective (see Appendix 1).

   AND

C. There is a documented medical reason why romidepsin (Istodax) is not a treatment option.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider belinostat (Beleodaq) to be a self-administered medication.

B. When pre-authorization is approved, belinostat (Beleodaq) will be authorized for up to five infusions every three weeks until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Belinostat (Beleodaq) is considered investigational when used in patients who have had prior treatment with romidepsin (Istodax) and when used in combination with other chemotherapy medications.

V. Belinostat (Beleodaq) is considered investigational when used for all other conditions, including but not limited to:

   A. Cutaneous T-cell lymphomas (e.g., Mycosis Fungoides, Sézary Syndrome).
   B. Hepatocellular carcinoma.
   C. Mesothelioma.
   D. Myelodysplastic Syndromes.
   E. Ovarian cancer.
   F. Thymic cancer.
   G. Carcinoma of unknown primary site (CUP).

Position Statement

- Belinostat (Beleodaq), an intravenously infused histone deacetylase (HDAC) inhibitor, is approved for the treatment of relapsed or refractory peripheral T-cell lymphoma (PTCL).
- Romidepsin (Istodax) is another intravenously infused HDAC inhibitor approved for relapsed or refractory PTCL. Among the infused HDAC inhibitors for PTCL, romidepsin (Istodax) provides the best value for health plan members.
- The intent of this policy is to cover belinostat (Beleodaq) for PTCL after at least two prior systemic therapies were not effective and it has been established that romidepsin (Istodax) is not a treatment option.
- Belinostat (Beleodaq) received FDA Accelerated approval based on surrogate endpoints (tumor response and duration of response) from an uncontrolled trial (no comparator). Additional studies are necessary to describe and verify a clinical benefit, as these surrogate endpoints have not been shown to correlate with clinically meaningful outcomes.
Patients enrolled in the belinostat (Beleodaq) clinical trial received a median of 2 prior therapies. Prior treatment with other HDAC inhibitors [e.g., romidepsin (Istodax)] was not allowed.

The most common adverse effects reported with belinostat (Beleodaq) include nausea, fatigue, pyrexia, anemia, and vomiting.

Belinostat (Beleodaq) is administered as a single-agent for five consecutive days of each 21-day cycle. It is given until disease progression or unacceptable toxicity.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

**Clinical Efficacy**

**PERIPHERAL T-CELL LYMPHOMA (PTCL)**

There is currently no evidence that belinostat (Beleodaq) improves clinical outcomes in patients with relapsed or refractory PTCL. Available evidence consists of a single, uncontrolled study (no comparator) that evaluated surrogate endpoints not tied to clinically relevant outcomes.

- A single, small (n = 129), unpublished, single-arm, low-quality study evaluated tumor response and duration of response in patients who had received prior therapy for PTCL. [1]

- Tumor response rates and duration of response are not proven to correlate with clinically relevant outcomes.

- It is not known how belinostat (Beleodaq) compares with other PTCL therapies; it has not been directly compared with placebo or any other therapy.

- Patients enrolled in the belinostat (Beleodaq) trial had a median of two prior therapies (range of 1 to 8) and a life expectancy of at least 3 months. Prior therapy with a histone deacetylase (HDAC) inhibitor [e.g., romidepsin (Istodax)] was not allowed.

- The overall response rate among the 120 evaluable patients was 25.8%, with a median duration of response of 8.4 months.

- The National Comprehensive Cancer Network (NCCN) T-cell Lymphomas guideline lists several potential options for the treatment of PTCL. All of the options are listed as category 2A recommendations, including belinostat (Beleodaq), meaning the quality of evidence is low but there was consensus among oncologists on the panel for inclusion on the guideline. [2]

**OTHER CANCERS:**

- Romidepsin (Istodax), another HDAC inhibitor, is approved for use in cutaneous T-cell lymphoma (e.g. Mycosis Fungoides, Sézary Syndrome). [3] Although there is interest in using belinostat (Beleodaq) for cutaneous forms of T-cell lymphoma, there is limited evidence for efficacy (i.e., response rates) in this setting. [4] Larger, well-controlled studies are needed to confirm preliminary findings.
- To date, the activity of belinostat (Beleodaq) in the following cancers has not been promising: mesothelioma [5], carcinoma of unknown primary site (CUP) [6], and myelodysplastic syndromes [7].

- There are several small, published, preliminary trials that studied belinostat (Beleodaq) in other types of cancer including thymic cancers [8], ovarian cancer [9], and hepatocellular carcinoma [10]. Larger, comparative studies are needed to establish clinical benefit in these conditions.

Safety [11]

- Safety information for belinostat (Beleodaq) is derived from a single-arm trial. The incidence of adverse effects (AEs) relative to other therapies is unknown.

- The most common adverse effects reported with belinostat (Beleodaq) in clinical trials include nausea, fatigue, pyrexia, anemia, and vomiting.

- Potentially serious AEs include suppression of bone marrow (thrombocytopenia, anemia, and neutropenia), serious infections, and hepatotoxicity.

- Similar AEs were reported with other HDAC inhibitors [romidepsin (Istodax)]. [3]

Dosing [11]

- Belinostat (Beleodaq) is given in a dose of 1,000 mg/m² administered intravenously over 30 minutes on days 1 through 5 of a 21-day cycle.

- Administration is continued until disease progression or unacceptable toxicity.
Appendix 1: Systemic Treatment Options for PTCL [a, b, c]

**First-line Therapy**

- Brentuximab vedotin + CHP (cyclophosphamide, doxorubicin, prednisone) for CD30+ histologies
- CHOEP (cyclophosphamide, doxorubicin, vincristine, etoposide, prednisone)
- CHOP (cyclophosphamide, doxorubicin, vincristine, prednisone)
- CHOP followed by IVE (ifosfamide, etoposide, epirubicin) alternating with methotrexate
- EPOCH (etoposide, prednisone, vincristine, cyclophosphamide, doxorubicin)

**Second-line Therapy**

**Transplant candidates**

- **Preferred single agents:**
  - Belinostat (Beleodaq)
  - Brentuximab vedotin (Adcetris) for CD30+ PTCL
  - Pralatrexate (Folotyn)
  - Romidepsin (Istodax)

- **Preferred combination regimens:**
  - DHAP (dexamethasone, cisplatin, cytarabine)
  - DHAX (dexamethasone, oxaliplatin, cytarabine)
  - ESHAP (etoposide, methylprednisolone, cytarabine, cisplatin)
  - GDP (gemcitabine, dexamethasone, cisplatin)
  - GemOx (gemcitabine, oxaliplatin)
  - ICE (ifosfamide, carboplatin, etoposide)

- **Other recommended single agents/regimens:**
  - Bendamustine
  - Gemcitabine
  - Lenalidomide (Revlimid)
  - GVD [gemcitabine, vinorelbine, liposomal doxorubicin (Doxil)]

**Non-transplant candidates**

- **Preferred single agents/regimens:**
  - Belinostat (Beleodaq)
  - Brentuximab vedotin (Adcetris) for CD30+ PTCL
  - Pralatrexate (Folotyn)
  - Romidepsin (Istodax)

- **Other recommended single agents:**
  - Alemtuzumab (Campath)
  - Bendamustine
  - Cyclophosphamide and/or etoposide (IV or PO)
  - Gemcitabine
  - Lenalidomide (Revlimid)
  - Radiation therapy

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**Cross References**

Adcetris, brentuximab vedotin, Medication Policy Manual, Policy No. dru264

Folotyn, pralatrexate, Medication Policy Manual, Policy No. dru197

Istodax, romidepsin, Medication Policy Manual, Policy No. dru198
<table>
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<th>Codes</th>
<th>Number</th>
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<td>HCPCS</td>
<td>J9032</td>
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References


## Revision History

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<th>Revision Summary</th>
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<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>4/25/2019</td>
<td>No changes to coverage criteria with this annual update.</td>
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</table>
| 7/20/2018     | - Clarify quantity limit (up to five infusions every three weeks until disease progression).  
                - Updated criteria with standard policy language (no changes to intent). |
| 7/14/2017     | No changes to coverage criteria with this annual update. |
| 9/9/2016      | No changes to coverage criteria with this annual update. |
| 9/12/2014     | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**  
**Policy No:** dru367  
**Topic:** Keytruda, pembrolizumab  
**Date of Origin:** November 13, 2014  
**Committee Approval Date:** June 17, 2022  
**Next Review Date:** December 2022  
**Effective Date:** July 15, 2022

**IMPORTANT REMINDER**

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**Description**

Pembrolizumab (Keytruda) is an intravenously infused immunotherapy that is used in the treatment of many different types of cancers.
Policy/Criteria

Most contracts require pre-authorization approval of Keytruda (pembrolizumab) prior to coverage.

I. Continuation of therapy (COT): Keytruda (pembrolizumab) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Keytruda (pembrolizumab) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that one of the following criterion A through Q below are met:

A. A diagnosis of Merkel cell carcinoma (MCC), locally advanced or metastatic, when criteria 1, 2, and 3 below are met:
   1. No prior systemic therapy (chemotherapy or immunotherapy) used in the advanced setting.

   AND

   2. Keytruda (pembrolizumab) will be used as monotherapy.
AND
3. No prior programmed death receptor-1 (PD-1) blocking antibody (PD-1 inhibitor) or programmed death-ligand 1 (PD-L1) blocking antibody therapy (see Appendix I).

OR
B. A diagnosis of cervical cancer, recurrent or metastatic, when criteria 1 through 3 below are met:
1. The tumor expresses PD-L1 with a Combined Positive Score (CPS) of 1 or more.

AND
2. Keytruda (pembrolizumab) will be used in one of the following two settings (a or b):
   a. As monotherapy when there has been disease progression on or after chemotherapy.
   OR
   b. In combination with chemotherapy when used in patients who have had no prior systemic therapy for advanced disease.

AND
3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix I).

OR
C. A diagnosis of gastric or gastroesophageal junction (GEJ) adenocarcinoma, recurrent locally advanced or metastatic, when criteria 1 through 4 below are met:
1. The tumor overexpresses HER2 (the tumor is HER2-positive).

AND
2. No prior systemic therapy in the advanced disease setting.

AND
3. Keytruda (pembrolizumab) will be used in combination with trastuzumab plus fluoropyrimidine- (e.g., fluorouracil, capecitabine) and platinum-containing (e.g., cisplatin, oxaliplatin) chemotherapy.

AND
4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix I).

OR
D. A diagnosis of esophageal cancer when criterion 1 or 2 below is met:
1. A diagnosis of esophageal cancer, squamous cell carcinoma of the esophagus (ESCC), recurrent locally advanced or metastatic, when criteria a through d below are met:
   a. Disease progression on or after prior systemic therapy.
AND
b. The tumor is PD-L1 positive as defined by a Combined Positive Score of 10 or more (CPS ≥ 10).

AND
c. Keytruda (pembrolizumab) will be used as monotherapy.

AND
d. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
2. A diagnosis of esophageal (adenocarcinoma or ESCC) or gastroesophageal junction (GEJ) cancer, locally advanced or metastatic when criteria a through e below are met:
a. The patient is not a candidate for surgical resection or definitive chemoradiotherapy (CRT).

AND
b. The tumor is PD-L1 positive as defined by a Combined Positive Score of 10 or more (CPS ≥ 10).

AND
c. Keytruda (pembrolizumab) will be used in combination with platinum (e.g., cisplatin or oxaliplatin) and fluoropyrimidine (e.g., fluorouracil or capecitabine) based chemotherapy.

AND
d. No prior systemic therapy in the advanced disease setting.

AND
e. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
E. A diagnosis of head and neck squamous cell cancer (HNSCC), recurrent or metastatic, and no prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
F. A diagnosis of hepatocellular carcinoma (HCC) when criteria 1 through 4 below are met:
1. A documented Child-Pugh score of 5 to 7 (Class A or B7).

AND
2. Disease progression on, or intolerance to an HCC-TKI (tyrosine kinase inhibitor), such as Nexavar (sorafenib) or Lenvima (lenvatinib).

AND
3. Keytruda (pembrolizumab) will be used as monotherapy.
AND
4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
G. A diagnosis of melanoma, advanced (stage III or IV) when criteria 1 and 2 below are met:
   1. Keytruda (pembrolizumab) will be used as monotherapy.
   AND
   2. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
H. A diagnosis of primary mediastinal B-cell lymphoma (PMBCL) when criteria 1 through 3 below are met:
   1. Disease progression on or after two or more lines of therapy [such as chemotherapy or hematopoietic stem cell transplant (HSCT); a.k.a. ASCT or bone marrow transplant (BMT)].
   AND
   2. Keytruda (pembrolizumab) will be used as monotherapy.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
I. A diagnosis of non-small cell lung cancer (NSCLC), metastatic (stage IV), and no prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
J. A diagnosis of classical Hodgkin Lymphoma (cHL), relapsed/refractory, when criteria 1, 2, and 3 below are met:
   1. Disease progression on or after one or more lines of systemic therapy [such as chemotherapy or a hematopoietic stem cell transplant (HSCT, BMT)].
   AND
   2. Keytruda (pembrolizumab) will be used as monotherapy.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
K. A diagnosis of urothelial carcinoma (UC, bladder cancer), when criteria 1, 2, and 3 below are met:
   1. Keytruda (pembrolizumab) will be used in one of the following settings (a or b):
   2. 
   3. 

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
a. A diagnosis of **locally advanced (stage III) or metastatic (stage IV) bladder cancer** and there is clinical documentation of disease progression during or following platinum-containing chemotherapy unless the patient is ineligible for any platinum-containing chemotherapy (such as cisplatin or carboplatin).

**PLEASE NOTE:** Any platinum ineligibility may include poor kidney function (CrCl<60), poor performance status (≥2), significant hearing loss (≥ 25 dB), grade 2-4 peripheral neuropathy, heart failure, other comorbidities, etc.

**OR**

b. A diagnosis of **non-muscle invasive bladder cancer** (NMIBC) with carcinoma in situ (stage Tis, the tumor has not invaded neighboring tissue) and prior use of Bacillus Calmette-Guerin (BCG) therapy documented.

**AND**

2. Keytruda (pembrolizumab) will be used as monotherapy.

**AND**

3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

**OR**

L. A diagnosis of **colorectal cancer** (CRC), locally advanced or metastatic, when criteria 1 through 3 below are met:

1. The tumor is microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR) CRC by immunohistochemistry (IHC) or polymerase chain reaction (PCR) testing.

**AND**

2. Keytruda (pembrolizumab) will be used as monotherapy.

**AND**

3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

**OR**

M. A diagnosis of **renal cell carcinoma** (RCC) when criteria 1 and 2 below are met:

1. Clear cell histology.

**AND**

2. Keytruda (pembrolizumab) will be used in one of the following settings (a or b):

   a. A diagnosis of **recurrent or metastatic** disease, when criteria i., ii., and iii. are met:

      i. No prior systemic therapy for advanced disease.
AND

ii. Use in combination with Inlyta (axitinib) or Lenvima (lenvatinib).

AND

iii. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

b. As adjuvant therapy (after surgery), when criteria i., ii., and iii. are met:

i. No prior systemic therapy for RCC.

AND

ii. Keytruda (pembrolizumab) will be administered as monotherapy.

AND

iii. Use in one of the following settings: (1. or 2.)

1. The tumor was **completely resected with clear margins** (the patient is tumor free based on MRI/CT scan) but there is intermediate-high or high-risk of RCC recurrence (per attestation or Appendix 2)

2. The patient has RCC with stage M1 metastasis but there is **no evidence of disease (M1 NED) after nephrectomy and resection of metastatic lesions** (per attestation or Appendix 2).

OR

N. A diagnosis of **endometrial carcinoma**, locally advanced or metastatic (either MSI-H/dMMR or MSI-stable/MMR proficient), when criteria 1 and 2 below are met:

1. Disease progression after at least one prior systemic therapy.

AND

2. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

O. A diagnosis of **anal squamous cell carcinoma**, (aSCC), recurrent or metastatic, when criteria 1, 2, and 3 below are met:

1. Disease progression on or after first-line cytotoxic chemotherapy.

AND

2. Keytruda (pembrolizumab) will be used as monotherapy.

AND

3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).
OR

P. A diagnosis of **cutaneous squamous cell carcinoma** (cSCC), when criteria 1, 2, and 3 below are met:
   1. Documentation that the disease is metastatic or is not curable with surgical excision or radiation therapy.
   AND
   2. Keytruda (pembrolizumab) will be used as monotherapy.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

Q. A diagnosis of **triple-negative breast cancer** (TNBC) when criteria 1 and 2 below are met:
   1. Keytruda (pembrolizumab) will be used in one of the following settings (a or b):
      a. **High-risk, early-stage (stage II or III) TNBC** in combination with cytotoxic chemotherapy as a neoadjuvant therapy, and then continued as a single agent as an adjuvant therapy after surgical excision.
      OR
      b. **Recurrent or metastatic TNBC** when criteria i through iii below are met:
         i. The tumor is PD-L1 positive as defined by a Combined Positive Score of 10 or more (CPS ≥ 10).
         AND
         ii. No prior systemic therapy in the advanced disease setting.
         AND
         iii. Keytruda (pembrolizumab) will be given in combination with cytotoxic chemotherapy.
   AND
   2. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

III. Administration, Quantity Limitations (QL), and Authorization Period

A. Regence Pharmacy Services considers Keytruda (pembrolizumab) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Keytruda (pembrolizumab) will be authorized as follows in Table 1 below:

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Table 1: QL and Authorization Period

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Dose</th>
<th>Total Coverable Duration of Therapy</th>
<th>Authorization Period (initial / ongoing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early-stage TNBC</td>
<td>Up to 200 mg every 3 weeks (OR up to 400 mg every 6 weeks)</td>
<td>- 24 weeks for neoadjuvant treatment and 27 weeks for adjuvant treatment.</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Until disease progression, up to 12 months.</td>
<td></td>
</tr>
<tr>
<td>Melanoma RCC</td>
<td></td>
<td>- Until disease progression in advanced setting.</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Until disease progression, up to 12 months for adjuvant treatment.</td>
<td></td>
</tr>
<tr>
<td>All other covered diagnoses</td>
<td></td>
<td>Until disease progression, up to 24 months.</td>
<td></td>
</tr>
</tbody>
</table>

RCC: renal cell carcinoma; TNBC: triple-negative breast cancer

C. Authorization **SHALL** be reviewed at least every six months for documented benefit. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met. Specifically, documentation that the medication is providing clinical benefit, including disease stability or improvement, and lack of disease progression.

D. For treatment beyond the maximum doses/duration of therapy specified above (in “QL and Authorization Period” Table 1): Authorization **SHALL** be reviewed at least every six months for documented benefit. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met. Specifically, documentation that the medication is providing clinical benefit, including disease stability or improvement, and lack of disease progression.

IV. Keytruda (pembrolizumab) is considered investigational when used for all other conditions, including but not limited to:

A. Triple negative breast cancer (TNBC) [except as specified in the sections above].
B. Adjuvant therapy for Stage IIB or IIC (completely resectable) melanoma.
C. Microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR) tumors [unless specified in the sections above].
D. Multiple myeloma.
E. Ovarian cancer.
F. Small cell lung cancer (SCLC).
G. Soft tissue sarcomas (STS).
H. TMB-H tumors (solid tumors with high mutational burden).
Position Statement

Summary

- Keytruda (pembrolizumab) is a human programmed death receptor-1 (PD-1) blocking monoclonal antibody (immunotherapy) used in the treatment of several types of cancers.

- The intent of this policy is to cover Keytruda (pembrolizumab) in settings where it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

* Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of Keytruda (pembrolizumab) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

* It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Keytruda (pembrolizumab) is also FDA approved for use in the following conditions; however, the health plan considers these uses to be “investigational” (not covered) as Keytruda (pembrolizumab) has not demonstrated to provide any health benefit, based on the currently available evidence:

  * Adjuvant therapy for Stage IIB and IIC (completely resectable) melanoma.
  * MSI-H Tumors, other than CRC and endometrial carcinoma (as described in the Clinical Efficacy section below).
  * Tumor Mutational Burden-High (TMB-H) Solid Tumors (any).

- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- National Comprehensive Cancer Network (NCCN) guidelines recommend Keytruda (pembrolizumab) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.

- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.

- Keytruda (pembrolizumab) is coverable for up to the dose and quantity as specified in the coverage criteria. It is administered until disease progression or unacceptable toxicity when used in melanoma (unresectable) and for up to 12 months as adjuvant therapy for resectable melanoma. For high-risk, early-stage triple-negative breast cancer (TNBC), it is administered as neoadjuvant therapy for up to 24 weeks and adjuvant therapy for up to 27 weeks (or until disease recurrence or unacceptable toxicity). For its other indications, it is given until disease progression, unacceptable toxicity, or for up to 24 months in patient without disease progression. Given that trials for most indications were specifically designed for a 24-month course of therapy, there is no conclusive additional benefit with higher doses or when given for longer durations.
- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using Keytruda (pembrolizumab) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

- The use of Keytruda (pembrolizumab) for small cell lung cancer (SCLC) is considered investigational. The FDA indication for SCLC was withdrawn after confirmatory trials failed to demonstrate an improvement in any health outcome when used in this setting.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

**Clinical Efficacy**

**CERVICAL CANCER**

- Keytruda (pembrolizumab) received FDA Accelerated approval for use in recurrent or metastatic cervical cancer when tumors express PD-L1 (CPS ≥ 1) based on tumor response rates from a single-arm, open-label study [KEYNOTE-158]. To date, there is no evidence that it improves any clinically relevant outcome [e.g., improved overall survival (OS), symptom control, function, or quality of life (QOL)] in this disease setting. [1]

* The current available evidence is limited to two small, uncontrolled, open-label Phase 1b/2 studies evaluated subjects with metastatic cervical cancer who had between one and four prior systemic therapies. Nearly all tumors expressed PD-L1 with a Combined Positive Score (CPS) of at least 1%. [2-4]
The reported objective response rate (ORR) in the pivotal study was 14.6%. Three patients (3.6%) had a complete response.

ORR has not been shown to accurately predict improvement in clinical endpoints in cervical cancer.

A phase 3, double-blind RCT [KEYNOTE-826] evaluated the addition of Keytruda (pembrolizumab) to a platinum-based chemotherapy regimen in patients with carcinoma of the cervix that had not been treated with prior systemic chemotherapy and which was not amenable to curative treatment. [5]

Patients had persistent, recurrent, or metastatic adenocarcinoma, adenosquamous carcinoma, or squamous cell carcinoma of the cervix. Patients were naïve to prior systemic chemotherapy and PD-1/PD-L1 inhibitor therapy.

Patients were enrolled without regard to PD-L1 status; however, all patients were tested after enrolling in the study. Eighty-nine percent of patients in the study had a PD-L1 combined positive score (CPS) of at least 1.

Patients received either Keytruda (pembrolizumab) or placebo plus a platinum and paclitaxel (with or without bevacizumab). Chemotherapy was given for up to six cycles and Keytruda (pembrolizumab) was given for up to 35 cycles.

OS was significantly longer in the Keytruda (pembrolizumab) versus the placebo arm among patients with a PD-L1 CPS ≥ 1 (primary analysis population). The HR for death was 0.64 [95% CI: 0.50 to 0.81] with p < 0.001. There was also a statistically significant survival benefit in the entire population, which included patients with PD-L1 CPS < 1 (“All comers”). However, patients with a PD-L1 CPS ≥ 1 made up the vast majority (~90%) of the study population which likely confounded the “All comers” analysis by enriching the population with potential responders. A subanalysis in patients with PD-L1 CPS < 1 showed no survival benefit which supports this conclusion.

The NCCN cervical cancer guideline recommends platinum-based chemotherapy for initial treatment of metastatic cervical cancer. Keytruda (pembrolizumab) is listed among recommended therapies for PD-L1-expressing tumors (CPS ≥ 1%). [6]

**COLORECTAL CARCINOMA (CRC), MSI-H or dMMR**

Keytruda (pembrolizumab) was initially approved for CRC as a subsequent therapy for locally advanced or metastatic MSI-H/dMMR CRC, when there is progression of disease on or after standard front-line therapy with fluoropyrimidine, oxaliplatin, and irinotecan, based on a combined cohort of 90 patients from several single-arm studies (a “basket” trial). [7,8]

The accelerated approval of Keytruda (pembrolizumab) was for microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) tumors was based on preliminary tumor response [overall response rate (ORR)] and duration of response (DOR) data from a “basket trial” pooled analysis of 149 patients across five different early phase, open-label trials (90 patients with CRC and 59 non-CRC patients).

Subjects enrolled in the basket trial had advanced solid tumors and at least one prior chemotherapy regimen. CRC-specific trials required prior CRC therapy.
* In 90 CRC patients, tumor response rate was 36%. However, no other outcomes were measured, and clinical benefit has not been established.
* Despite the low level of evidence, Keytruda (pembrolizumab) may be a reasonable treatment alternative in patients with MSI-H/dMMR CRC when there is progressive disease on or after standard CRC therapies.

- Subsequently, the FDA approved Keytruda (pembrolizumab) for use as an initial therapy for MSI-H/dMMR CRC, based on an improvement in PFS in a single unblinded Phase 3 trial [KEYNOTE-177]. Keytruda (pembrolizumab) was superior to investigator’s choice of chemotherapy (fluorouracil-based chemotherapy with or without bevacizumab or cetuximab) for PFS. However, overall survival data, a secondary endpoint, was not mature at the time of FDA approval. Therefore, the clinical benefit is unknown. Of note, high crossover to Keytruda (pembrolizumab) will confound interpretation of future OS results.

- The NCCN CRC guideline recommends against the use of Keytruda (pembrolizumab) for MSI-H CRC in the adjuvant setting, meaning after surgery, but before any progression of disease. Standard therapies with fluoropyrimidine (fluorouracil, capecitabine), oxaliplatin, and irinotecan are recommended (with regimens such as FOLFOX, CAPEOX, or FOLFIRI). In the locally advanced and metastatic setting, treatment is recommended based on tumor markers, including KRAS wild type [Erbitux (cetuximab)], or prior therapies and may include addition of a VGEF inhibitor (bevacizumab). [6]

**HEAD AND NECK SQUAMOUS CELL CANCER (HNSCC)**

- Keytruda (pembrolizumab) was FDA approved as a first-line treatment for unresectable or metastatic HNSCC as a monotherapy OR in combination with standard chemotherapy, based on small improvement in overall survival (OS) in an open-label phase 3 trial [KEYNOTE-048]:
  
  * The combination of Keytruda (pembrolizumab) and a platin plus fluorouracil improved median OS relative to Erbitux (cetuximab) plus a platin and fluorouracil (13.0 months versus 10.7 months, respectively; \( p = 0.0067 \)).
  
  * A small survival advantage (statistically significant) was noted with use of Keytruda (pembrolizumab) monotherapy relative to Erbitux (cetuximab) plus a platin and fluorouracil in PD-L1-positive tumors (CPS >= 1). Median OS was 12.3 months and 10.3 months in the Keytruda (pembrolizumab) and chemotherapy arms, respectively. The advantage did not extend to the overall population (OS superiority was only for tumors with CPS >= 1).

- Keytruda (pembrolizumab) also has approval (Accelerated) as a subsequent-line therapy for recurrent or metastatic HNSCC as a single agent when used after progression of disease on or after a platinum-containing chemotherapy. Efficacy was based on improved tumor response rates in two uncontrolled, open-label studies, with a 16% objective response rate (ORR). A small proportion of complete responses (4.6%) was reported in one of the trials. The remainder were partial responses. To date, there is no evidence that it improves any clinically relevant outcome (e.g., improved survival, symptom control, function, or quality of life) in this setting. [8,11]

- There is no evidence to support the use of Keytruda (pembrolizumab) as a second-line therapy in patients unable to use first-line platinum-based chemotherapy for HNSCC.
The NCCN head and neck cancers guideline lists use of Keytruda (pembrolizumab) for recurrent, unresectable, or metastatic HNSCC when used in the front-line treatment setting, as well as when used in the subsequent-line treatment setting. [6]

HEPATOCELLULAR CARCINOMA (HCC)

Keytruda (pembrolizumab) received Accelerated FDA approval for use in HCC after progression of disease on, or intolerance to, first-line Nexavar (sorafenib) based on a small, single-arm, open-label Phase 2 preliminary study [KEYNOTE-224] in patients with Child-Pugh Class A disease that evaluated tumor response rate. Clinical benefit in this setting has not been demonstrated. [12] A subsequent, confirmatory phase 3 trial [KEYNOTE-240] failed to demonstrate PFS or OS benefit.

- Subjects enrolled in the trial had progressive disease while on Nexavar (sorafenib) or had intolerable adverse effects to Nexavar (sorafenib) therapy.
- Nearly all of the patients were Child-Pugh Class A (score of A5 or A6); however, a small portion (6%) had a score of B7/B8 (Class B).
- Most patients (64%) had disease that had spread beyond the liver.
- An ORR of 17% was reported in the trial. ORR has not been shown to accurately predict clinically relevant outcomes. Additionally, it is not known how Keytruda (pembrolizumab) compares with other second-line HCC therapies.

The confirmatory phase 3 RCT [KEYNOTE-240] evaluating Keytruda (pembrolizumab) relative to placebo (best supportive care) in the second-line advanced HCC setting failed to meet the primary endpoints of PFS and OS. [13] There is the potential for this indication to be withdrawn in the future based on FDA guidance for Accelerated approvals that states: “Continued approval for this indication may be contingent upon verification and description of clinical benefit in the confirmatory trials”.

The NCCN hepatocellular carcinoma guideline lists several recommended (category 1 and 2A) therapies for subsequent therapy for HCC, including Opdivo (nivolumab) alone or in combination with Yervoy (ipilimumab). Keytruda (pembrolizumab) was assigned a lower level recommendation (category 2B) as a subsequent therapy after HCC-TKI therapy, such as Nexavar (sorafenib). [6]

CLASSICAL HODGKIN LYMPHOMA (cHL)

Keytruda (pembrolizumab) was FDA-approved in classical Hodgkin lymphoma based on a single-arm trial that evaluated tumor response rates in patients with relapsed or refractory disease. Patients in the study were heavily treatment-experienced. [8,14] To date, there is no evidence that Keytruda (pembrolizumab) improves any clinical outcome in this population.

- Subjects enrolled in the trial had received a median of four prior therapies, including prior autologous hematopoietic stem cell transplant (61%) and/or Adcetris (brentuximab vedotin) 83%.
- The ORR reported in the study was 69%, with 22% complete responses.

Subsequently, the Keytruda (pembrolizumab) was studied in an open-label (not blinded) phase 3 RCT in an earlier line of therapy for relapsed or refractory cHL, after
chemotherapy and/or hematopoietic stem cell transplant (HSCT), or in patients ineligible for HSCT in one unblinded Phase 3 trial [KEYNOTE-204]. [8]

* Keytruda (pembrolizumab) was superior to brentuximab vedotin (BV, Adcetris), based on an improvement in PFS (13.2 months with pembrolizumab vs. 8.3 months with BV).

* Overall survival data, a co-primary endpoint, was not mature at the time of the interim data analysis and the FDA approval. Therefore, the clinical benefit is unknown. Of note, a significant number of subjects received subsequent SCT (30% and 21% in the pembrolizumab and BV arms, respectively), which will confound future OS results.

- The NCCN Hodgkin lymphoma guideline lists Keytruda (pembrolizumab) as a treatment option for relapsed/refractory Hodgkin lymphoma. [6]

MALIGNANT MELANOMA

Advanced (Unresectable or Metastatic) Melanoma Setting

- The efficacy of Keytruda (pembrolizumab) in malignant melanoma (unresectable or metastatic) is based on two, multi-center, open-label, pivotal clinical trials; one in Yervoy (ipilimumab)-refractory subjects and the other in Yervoy (ipilimumab)-naïve subjects.

* One trial compared Keytruda (pembrolizumab) in doses of 10 mg/kg IV every 2 weeks or every 3 weeks with Yervoy (ipilimumab) 3 mg/kg IV every 3 weeks in progressive, unresectable, or metastatic disease. [8,15] Progression-free survival (PFS) and 12-month survival were superior in the Keytruda (pembrolizumab) treatment arms. Overall survival (OS) was not yet mature. [Note: The FDA-approved dosing of Keytruda (pembrolizumab) is 2 mg/kg IV every 3 weeks, so the applicability of these results is uncertain]

* A second trial compared Keytruda (pembrolizumab) 2 mg/kg or 10 mg/kg IV every 3 weeks with investigator’s choice of chemotherapy in progressive, unresectable, or metastatic disease. [8,16] There was a statistically significant improvement in median PFS with Keytruda (pembrolizumab) relative to the chemotherapy arm; however, the clinical relevance of the small numerical difference (0.2 months) is uncertain. There was no difference in PFS between the two Keytruda (pembrolizumab) dosing arms. Overall survival is not mature.

* There is no evidence to date that Keytruda (pembrolizumab) has any clinical benefit (improved overall survival, symptom control, function, or quality of life) in melanoma. Additionally, much of the available evidence is for doses that are much higher than the FDA-approved dose of Keytruda (pembrolizumab).

Keytruda (pembrolizumab) as an Adjuvant Therapy for Resectable Melanoma

- Keytruda (pembrolizumab) was evaluated as an adjuvant therapy in patients with resectable stage IIIb/C or stage IV (metastatic) melanoma after complete surgical resection [KEYNOTE-054]. [17]

* The study compared Keytruda (pembrolizumab) with placebo. Treatment was started within 13 weeks of tumor resection and was continued for up to one year.

* There was a statistically significant improvement in recurrence-free survival (RFS) with Keytruda (pembrolizumab). It is unknown whether this will
eventually translate to improvement in OS, a clinically relevant endpoint.

- Keytruda (pembrolizumab) was also evaluated as an adjuvant therapy for stage IIB and IIC (completely resectable) melanoma [KEYNOTE-716]; however, no clinical outcomes are reported to date. [18] Refer to the ‘Other Investigational Uses’ section below.

- NCCN melanoma guideline: Keytruda (pembrolizumab) is listed as an option for metastatic/unresectable melanoma (first-line or subsequent therapy) and in the adjuvant setting (after complete resection) for stage IIB and IIC disease. For stage IIB and IIC disease, observation and adjuvant Keytruda (pembrolizumab) are listed as recommendations. If Keytruda (pembrolizumab) is considered, the guideline states the need for careful assessment of risk versus benefit as there is currently no information evaluating its impact on overall survival in this population. [6]

**MERKEL CELL CARCINOMA (MCC):**

- Keytruda (pembrolizumab) was FDA-approved as a single agent for locally advanced or metastatic MCC, previously untreated with systemic therapy for advanced disease, based on a small, single-arm Phase 2 trial that evaluated tumor response rate [KEYNOTE-017]. [19]

- A clinically relevant benefit, such as improved OS relative to standard of care, has not been established. Phase 3 trials are ongoing. [20]

- Chemotherapy historically has been the standard approach for advanced MCC. Although MCC appears to be chemosensitive, the duration of response is limited. The impact of chemotherapy on survival in patients with metastatic MCC is unclear. [6]

- The NCCN guideline lists pembrolizumab among potential treatment options for unresectable MCC. [6]

**NON-SMALL LUNG CANCER (NSCLC)**

- Keytruda (pembrolizumab) improves overall survival (OS) relative to cytotoxic chemotherapy in patients with metastatic NSCLC in the following treatment settings:
  * Front-line therapy for nonsquamous disease when administered with a platinum plus Alimta (pemetrexed) [KEYNOTE-021]. [21]
  * First-line therapy for squamous disease when administered with carboplatin plus a taxane [KEYNOTE-407]. [22]
  * First- or subsequent-line therapy for PD-L1-positive tumors [Tumor Proportion Score (TPS) ≥ 50% first-line; ≥ 1% subsequent] when used as a single agent [KEYNOTE-024, -010]. [23,24]

- An FDA-approved test (PD-L1 IHC 22C3 pharmDx) was developed in conjunction with Keytruda (pembrolizumab). The TPS measures the proportion of viable tumor cells that show partial or complete membrane staining on immunohistochemical (IHC) assay. [23]

- The NCCN NSCLC guideline recommends Keytruda (pembrolizumab) for: [6]
  * First-line, metastatic NSCLC when:
    * PD-L1 expression positive (≥ 50%) and tumor is EGFR-, ALK-, ROS1-, or BRAF-negative [category 1].
    * Nonsquamous histology: with a platin plus pemetrexed [category 1, preferred].
- Squamous histology: with carboplatin plus paclitaxel or albumin-bound Abraxane (paclitaxel) [category 1, preferred].
  * Subsequent therapy for metastatic, PD-L1 expression positive (> 1%) NSCLC with ECOG performance status of 0, 1, or 2 [category 1].

**PRIMARY MEDIASTINAL B-CELL LYMPHOMA (PMBCL)**

- Keytruda (pembrolizumab) received FDA Accelerated approval for use in relapsed or refractory PMBCL based on tumor response rates from a single-arm, open-label study [KEYNOTE-170]. [8] To date, there is no evidence that it improves any clinically relevant outcome (e.g., improved survival, symptom control, function, or quality of life) in this disease setting.

  * Two small, uncontrolled, open-label studies evaluated patients with relapsed or refractory PMBCL who failed to achieve a complete remission after, or were ineligible for, an autologous stem cell transplant. [26-28]

  * Patients received a median of three prior therapies prior to Keytruda (pembrolizumab), and all had prior rituximab.

  * The reported objective response rate (ORR) was 45.3% and 47.6%. Six patients (11.3%) and seven patients (33.3%) had complete responses, respectively.

  * ORR has not been shown to accurately predict improvement in clinical endpoints in PMBCL.

- The NCCN B-cell lymphomas guideline lists rituximab-containing chemotherapy regimens among recommended therapy options for relapsed or refractory PMBCL when patients are not candidates for high-dose therapies with stem cell rescue. Keytruda (pembrolizumab) is listed as a treatment option for relapsed disease. [6]

**RENAL CELL CARCINOMA (RCC)**

- FDA approval for Keytruda (pembrolizumab) in combination with Inlyta (axitinib) was based on interim PFS results from a phase 3, open-label (not blinded) randomized controlled trial (RCT) versus Sutent (sunitinib) monotherapy in patients with advanced, clear cell RCC in the front-line treatment [KEYNOTE-426]. [29] Overall survival, the co-primary endpoint, was not mature at the time of approval.

  * Median progression-free survival (PFS) was greater in the combination treatment arm [15.1 months versus 11.1 months with sunitinib].

  * Median overall survival was not met in either treatment arm at the time of the interim analysis.

  * In a subsequent analysis of overall survival, the median OS was not reached with pembrolizumab/axitinib and was 35.7 months in the sunitinib treatment arm. [30]

- There was a slight increase in grade 3 and 4 adverse effects in the combination arm. Additionally, 27% of subjects in the combination arm had immune-mediated AEs that required 40 mg or more per day of prednisone. [8]

- FDA approval of Keytruda (pembrolizumab) in combination with Lenvima (lenvatinib) is based on results from a phase 3, open-label (not blinded) RCT where this combination was found to show improved PFS relative to Sutent (sunitinib) monotherapy in patients with advanced, clear cell RCC in the front-line treatment [KEYNOTE-581/CLEAR Study]. [8,31]
* All patients in the trial had a clear cell component (histology) and good performance status.

* The median PFS was 23.9 months versus 9.2 months in the Keytruda (pembrolizumab)- Lenvima (lenvatinib) and Sutent (sunitinib) treatment arms, respectively.

* Median OS was not met in either treatment arm.

* Limitations of this study include, but are not limited to:
  - PFS is a surrogate radiographic endpoint that may not accurately predict that a patient will live a longer or better life.
  - Front-line therapies for advanced RCC have evolved such that Sutent (sunitinib) is no longer considered a standard of care. The efficacy and safety of Keytruda (pembrolizumab) plus Lenvima (lenvatinib) relative to other available standards of care is not known.

- The use of Keytruda (pembrolizumab) as an adjuvant therapy for patients with resected RCC with a high risk of recurrence was based on a RCT [KEYNOTE-564] that compared it with best supportive care. Keytruda (pembrolizumab) or placebo was given every 3 weeks for a maximum of 17 cycles (one year). [32]

* Patients had either localized, resectable RCC; or had RCC with a fully resectable metastatic lesion [M1 No Evidence of Disease (NED)] and had a high risk of disease recurrence (refer to Appendix 2 for definitions).

* Only patients with RCC with a clear cell component were included. No prior systemic therapy for RCC was allowed.

* The primary endpoint was disease-free survival (DFS), a non-validated endpoint. At 24 months, 77% and 68% of patients in the Keytruda (pembrolizumab) and placebo arms were alive and recurrence free, respectively. Overall survival data is not yet mature.

- Currently, there is no evidence supporting the use of Keytruda (pembrolizumab) in subsequent-line RCC settings, or as a monotherapy for advanced RCC.

- The NCCN kidney cancer guideline lists: [6]

* The combination of Keytruda (pembrolizumab) with Inlyta (axitinib) or Lenvima (lenvatinib) among several recommended regimens as a first-line treatment for advanced, clear cell RCC. The recommendation ratings vary, based on risk assessment.

* For resectable RCC with high risk of recurrence, Keytruda (pembrolizumab) as a single agent or surveillance are listed among recommendations for clear cell, previously untreated disease.
UROTHELIAL CARCINOMA (UC; BLADDER CANCER)

- **As initial therapy (cisplatin ineligible) – Advanced disease** - A single-arm, open-label trial [KEYNOTE-052] evaluated Keytruda (pembrolizumab) in subjects with locally advanced or metastatic urothelial carcinoma who were ineligible for treatment with a cisplatin-based regimen. Approval was based on tumor response. [8,33]

  * ORR was 29%, with 7% of the responses considered complete.
  * Response rate was higher in patients with a combined positive score (CPS) ≥ 10%. [33]
  * There is no evidence that Keytruda (pembrolizumab) improves any clinically relevant outcome in this population. Although a median OS was reported, this information is of little relevance as there was no comparator group to allow any conclusion of a health benefit relative any other therapy.

- **As subsequent therapy - Advanced disease** - A randomized, active-controlled, open-label trial [KEYNOTE-045] evaluated Keytruda (pembrolizumab) versus investigator’s choice of single-agent chemotherapy in subjects with locally advanced or metastatic urothelial carcinoma who had disease progression on or after platinum-containing chemotherapy. [8,34]

  * Fifteen percent of subjects enrolled in the trial had disease progression following platinum-containing neoadjuvant or adjuvant chemotherapy.
  * The median OS was statistically greater with pembrolizumab vs. chemotherapy (10.3 months versus 7.4 months, respectively).

- **For BCG-unresponsive non-muscle invasive bladder cancer (NMIBC)** - A small, single-arm, non-blinded study evaluated Keytruda (pembrolizumab) in subjects with high-risk, recurrent or persistent NMIBC that was unresponsive to adequate treatment with Bacillus Calmette-Guerin (BCG) therapy who were either not eligible for a cystectomy (bladder removal), or did not elect to undergo cystectomy [KEYNOTE-057]. [8,35]

  * All patients had NMIBC with carcinoma in situ (stage Tis) meaning the tumor had not invaded neighboring tissue.
  * Adequate BCG therapy was defined as having at least 5 of 6 induction intravesicular instillations AND either 2 of 3 maintenance instillations, or at least 2 of 6 doses of a second induction course. The median number of BCG instillations in the trial was 12.
  * Complete response (CR) was the study endpoint and was achieved in 41% of patients. The median duration of response was 16.2 months. Overall response rate (ORR) is an unvalidated surrogate endpoint that has not been shown to accurately predict clinical outcomes.

- **NCCN bladder cancer treatment guidelines** recognize: [6]

  * Platinum-based chemotherapy as the standard of care in patients with metastatic UCC, with proven overall survival benefit.
  * Keytruda (pembrolizumab) is listed as a recommended option for both front-line use in platinum ineligible patients and as a subsequent therapy post-platinum-based chemotherapy in patients with recurrent or metastatic UCC.
Ineligibility for cisplatin in the clinical trial was defined as CrCl 30 to 60 mL/min, poor kidney function (CrCl < 60 mL/min), poor performance status (≥2), significant hearing loss (≥ 25 dB), grade 2-4 peripheral neuropathy, heart failure, other comorbidities. Ineligibility for cisplatin is mentioned in NCCN as renal impairment (CrCl < 60 mL/minute) or comorbidities. Ineligibility for any platinum-containing chemotherapy is not explicitly defined by the clinical trials or NCCN. However, NCCN notes that carboplatin can be substituted for cisplatin for patients with a CrCl < 60 mL/min. Overall comorbidities should be considered for platinum eligibility (such as cardiac disease, advanced age, performance status, or “if the patient is unfit”).

In patients with NMIBC, the NCCN lists Keytruda (pembrolizumab) as a recommended option for recurrent or persistent disease unresponsive to BCG and the patient is ineligible for a cystectomy or chooses not to have one.

GASTRIC AND GASTROESOPHAGEAL JUNCTION (GEJ) ADENOCARCINOMA

A multicenter, randomized, double-blind, placebo-controlled trial [KEYNOTE-811] evaluated the addition of Keytruda (pembrolizumab) to standard of care (SOC) trastuzumab plus chemotherapy relative to placebo plus SOC in patients with HER2-positive, locally advanced unresectable, or metastatic gastric or gastroesophageal junction (GEJ) adenocarcinoma. The FDA granted accelerated approval in this population based on tumor responses observed in the first 264 patients randomized into the study. Data from this interim analysis is preliminary and does not establish clinical benefit. [8,36]

All patients enrolled in this study had no prior therapy for metastatic disease, no prior PD-1/PD-L1 inhibitor therapy and had good performance status.

Patients received SOC trastuzumab plus chemotherapy [either CAPEOX (87%) or fluorouracil plus cisplatin (13%)] in addition to either Keytruda (pembrolizumab) or placebo.

Approximately 87% of patients had a PD-L1 CPS of 1% or more.

The ORR was 74% and 52% in the Keytruda (pembrolizumab) and placebo groups, respectively. There were complete response in 11% and 3% of patients, respectively.

This study is ongoing with PFS and OS as coprimary endpoints. Whether the addition of Keytruda (pembrolizumab) to SOC therapy provides any additional clinical benefit is yet to be determined.

The NCCN gastric and gastroesophageal junction cancer guideline lists the addition of pembrolizumab to standard of care trastuzumab plus chemotherapy among potential options. There are other recommendations placed above this therapy regimen. [6]

Keytruda (pembrolizumab) received Accelerated approval as a monotherapy for recurrent locally advanced or metastatic gastric or GEJ adenocarcinoma in tumors expressing PD-L1 (CPS ≥ 1) when disease progressed on or after two or more lines of therapy [KEYNOTE-059]. Subsequently, this indication was voluntarily withdrawn by the manufacturer because clinical benefit was not demonstrated in confirmatory trials. [8,37]

Therefore, use of Keytruda (pembrolizumab) in the subsequent-line advanced gastric and GEJ adenocarcinoma settings is considered investigational.
Several other Keytruda (pembrolizumab) trials have also failed to establish clinical benefit in various gastric cancer settings:

* Keytruda (pembrolizumab) in the second-line setting failed to meet the primary endpoints of PFS and OS as compared to paclitaxel in a phase 3 trial [KEYNOTE-061]. [38] All subjects had gastric/GEJ cancer with a PD-L1 CPS of 1 or higher that progressed on first-line chemotherapy with a platinum and fluoropyrimidine.

* In the first-line setting, Keytruda (pembrolizumab), as a monotherapy or in combination with chemotherapy, failed to improve PFS and OS as compared to chemotherapy alone in a phase 3 trial [KEYNOTE-062]. [39] All subjects had gastric/GEJ cancer with a PD-L1 CPS of 1 or higher. Among patients with a CPS of ≥ 10, Keytruda (pembrolizumab) was numerically, but not statistically, superior to chemotherapy. Of note, 15% of patients in the control arm were treated with post-trial immune checkpoint inhibitors.

### ESOPHAGEAL and GEJ CANCER

**Front-line setting:**

- A double-blind RCT [KEYNOTE-590] evaluated the addition of Keytruda (pembrolizumab) to standard front-line chemotherapy relative to placebo plus chemotherapy in patients with locally advanced or metastatic esophageal or gastroesophageal junction (GEJ) carcinoma. The coprimary endpoints were PFS and OS. [8, 40]

  * The trial included patients with esophageal cancer with either squamous cell carcinoma or adenocarcinoma histology. GEJ cancers were included if they had an epicenter 1 to 5 centimeters above the GEJ.

  * Therapy was continued until disease progression, unacceptable toxicity, or for up to a maximum of two years.

  * Patients enrolled in the trial were not candidates for surgical excision of their tumor or for definitive chemoradiation (CRT) and had no prior treatment in the advanced disease setting. The majority (54%) of patients enrolled had tumors that had a PD-L1 CPS ≥ 10.

  * The median OS in the overall population was 12.4 months and 9.8 months in the Keytruda (pembrolizumab) and placebo treatment arms, respectively; and the median OS in the PD-L1 CPS ≥ 10 population was 13.5 months and 9.4 months, respectively. An exploratory analysis found there was no difference in median OS in the PD-L1 CPS < 10 population (10.5 months and 10.6 months, respectively), suggesting that efficacy of Keytruda (pembrolizumab) was being driven by PD-L1 expression.

- The NCCN guidelines list chemotherapy plus a platin plus Keytruda (pembrolizumab) among several recommended treatment options for unresectable locally advanced or metastatic esophageal or esophagogastric junction cancer, but limits the use of Keytruda (pembrolizumab) to tumors with PD-L1 CPS ≥ 10. [8]
**Subsequent-line setting:**

- Keytruda (pembrolizumab) was evaluated in a randomized, controlled trial in patients with recurrent locally advanced, or metastatic esophageal carcinoma who progressed on or after on prior systemic therapy [KEYNOTE-181]. [41] The trial included both squamous cell carcinoma (ESCC) and adenocarcinoma. However, the primary efficacy endpoint was OS in patients with ESCC, patients with tumors expressing PD-L1 CPS ≥10, and all randomized patients.
  * Keytruda (pembrolizumab) as a single agent was compared with investigator’s choice of chemotherapy.
  * Patients with HER2/neu-positive disease were required to have received treatment with an approved HER2/neu targeted therapy [e.g., trastuzumab].
  * The primary analysis for this study was in the subgroup of patients with PD-L1 expressing ESCC (CPS ≥ 10) found an overall survival advantage with Keytruda (pembrolizumab) relative to cytotoxic chemotherapy. There was no survival difference between the groups when the intent-to-treat population was analyzed so the FDA-approval excluded PD-L1 negative tumors.
  * Subpopulations with tumor histologies other than ESCC (e.g., patients with esophageal adenocarcinoma) were not part of the primary analysis so are not included as part of the FDA indication.
  * Randomization was not stratified by PD-L1 status which is a potential limitation of this data.

- The NCCN esophageal cancer guideline lists Keytruda (pembrolizumab) as a preferred, recommended option for esophageal squamous cell carcinoma (ESCC) when used in the second-line setting for PD-L1-positive tumors with CPS ≥ 10. It is also a recommended option when used in the third or subsequent-line setting for PD-L1-positive tumors with CPS of ≥ 1. [6]

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**ENDOMETRIAL CANCER**

- Keytruda (pembrolizumab) received Accelerated FDA-approval for use in patients with metastatic endometrial carcinoma, in combination with Lenvima (lenvatinib), in patients whose disease progressed on prior therapy in any treatment setting and curative surgery or radiation is not an option. It was approved in this setting based on a cohort of patients from a small, single-arm trial that evaluated tumor response rate [KEYNOTE-146). [42] Clinical benefit has not been established.

- The evidence supporting the use of Keytruda (pembrolizumab) as a single agent in unresectable or metastatic, MSI-H/dMMR endometrial carcinoma after progression on standard front-line therapies is of poor quality. It is derived from a multi-cohort, single-arm trial that reported tumor response rate as the endpoint [KEYNOTE-158]. There is currently no comparative data or information related to improvement in any clinical outcome. [43]

- The NCCN uterine cancer guideline, which includes endometrial carcinoma, lists many single-agent and combination chemotherapy regimens as recommended regimens, including Keytruda (pembrolizumab) plus Lenvima (lenvatinib) under “Useful in Certain Circumstances.” Keytruda (pembrolizumab) as a single-agent is also listed among recommendations for MSI-H/dMMR endometrial tumors. [6]
CUTANEOUS SQUAMOUS CELL CARCINOMA (cSCC)

- Keytruda (pembrolizumab) was evaluated in a Single-arm, non-blinded, multi-cohort, phase 2 trial in patients with cSCC [KEYNOTE-629]. [44]
  * The cohort evaluated for the FDA accelerated approval included metastatic cSCC (55) and advanced recurrent disease in which is not curable with surgery or radiation.
  * All subjects had prior systemic therapy, and 87% had ≥ 2 prior therapies.
  * An ORR of 34% was reported, with 3.8% complete response (CR) and 30% partial response (PR). However, health outcomes are unknown.

- ORR is an unvalidated surrogate endpoint that has not been shown to accurately predict clinical outcomes. ORR is a measure of tumor size (visible by physical observation or on x-ray) and is a combination of complete and partial responses. In advanced disease, ORR may not be representative of disease that has traveled to lymph nodes of other parts of the body, so it may not be an accurate measure of clinical benefit.

- The NCCN lists Keytruda (pembrolizumab) among several potential therapy recommendations for cSCC that has recurred or metastasized (disease that is not curable with resection and/or radiation). [6]

ANAL SQUAMOUS CELL CARCINOMA (SCC)

- Although not FDA-approved for this use, Keytruda (pembrolizumab) and Opdivo (nivolumab) have been used in anal squamous cell carcinoma that is refractory to or recurs on front-line chemotherapy based on the lack of effective therapies for refractory disease. The majority of patients with anal SCC respond well to standard cytotoxic chemotherapy.

- Preliminary studies suggest these therapies have potential activity in this setting:
  * A manufacturer-funded study reported an ORR of 17% (all partial responses) in 24 patients with recurrent PD-L1-positive (> 1%) advanced anal SCC who received Keytruda (pembrolizumab). [45]
  * A National Institutes of Health (NIH) funded study reported an ORR of 24% (two complete and seven partial responses) in 37 patients with treatment refractory metastatic anal SCC who received Opdivo (nivolumab). [46]
  * Additional studies are needed to establish whether there is a lasting clinical benefit with these PD-1 inhibitors in this treatment setting. However, given the lack of treatment alternatives in a relatively small patient population, the use of Keytruda (pembrolizumab) and Opdivo (nivolumab) are considered medically necessary and coverable in chemotherapy-refractory disease.

- Both Keytruda (pembrolizumab) and Opdivo (nivolumab) are listed as treatment options for subsequent therapy for recurrent anal carcinoma in the NCCN guideline. [6]

- Given the lack of treatment alternatives in a relatively small patient population, the use of Keytruda (pembrolizumab) is considered medically necessary and coverable in chemotherapy-refractory disease.
BREAST CANCER

- **Advanced (locally advanced or metastatic) triple-negative breast cancer (TNBC):**
  
  FDA approval in TNBC is based on an RCT that studied the addition of Keytruda (pembrolizumab) to standard chemotherapy (paclitaxel, paclitaxel protein-bound, or gemcitabine and carboplatin) relative to chemotherapy alone (placebo arm) in patients with locally recurrent unresectable or metastatic TNBC who had not been previously treated with chemotherapy in the metastatic setting [KEYNOTE-355]. In patients with PD-L1 CPS ≥ 10, the addition of Keytruda (pembrolizumab) to standard chemotherapy improved OS, relative to chemotherapy alone.

* The trial enrolled patients regardless of their PD-L1 status. When it became apparent that there was no PFS difference between the treatment groups, the protocol was amended to change the primary analysis from all comers to the subpopulation with a PD-L1 combined positive score (CPS) ≥ 10.

* In subjects with a PD-L1 CPS of ≥ 10, the median PFS was 9.7 months and 5.6 months in the Keytruda (pembrolizumab)/chemotherapy and chemotherapy only treatment arms, respectively. The secondary endpoint was PFS in the PD-L1 CPS ≥ 1 subgroup. No difference in PFS was demonstrated in this population.

* A subsequent analysis reported a statistically significant improvement in median OS for the subgroup with PD-L1 CPS ≥ 10. The median OS was 23.0 months and 16.1 months in the Keytruda (pembrolizumab)/chemotherapy and chemotherapy only treatment arms, respectively [HR 0.73 (95% CI: 0.55, 0.95)]. There was no difference in OS detected between the Keytruda (pembrolizumab) and placebo groups in the subgroup with PD-L1 CPS ≥ 1 or in the ITT population (‘All comers’ regardless of PD-L1 status).

* NCCN guidelines list the use of Keytruda (pembrolizumab) among recommended therapies for PD-L1-positive advanced TNBC.

- **Neoadjuvant/adjuvant triple-negative breast cancer (TNBC):**
  
  FDA approval of Keytruda (pembrolizumab) in combination with chemotherapy as a neoadjuvant therapy and then continued as a single agent as an adjuvant therapy after surgical excision was based on a double-blind, placebo-controlled RCT that compared pembrolizumab (plus chemotherapy) with placebo (plus chemotherapy) and evaluated event-free survival (EFS) as a surrogate endpoint. [KEYNOTE-522] The health benefit of the addition of Keytruda (pembrolizumab) to chemotherapy relative to alternatives (chemotherapy alone) for early TNBC is currently unknown. The OS data is not yet mature and EFS is not a validated endpoint for predicting an OS benefit.

* Patients had newly diagnosed early-stage, high-risk TNBC who had no prior systemic therapy for their disease and were newly diagnosed. Patients with metastatic disease were excluded from the study.

* Keytruda (pembrolizumab) was given with chemotherapy for eight total 3-week cycles prior to surgical excision and was continued as monotherapy as a single agent for up to 9 additional, 3-week cycles [total of up to one year of Keytruda (pembrolizumab)].
* There was a relative improvement in EFS reported for patients in the Keytruda (pembrolizumab) arm of the study in a preliminary analysis. OS data is not currently mature.

* EFS is not a validated endpoint for predicting an OS benefit. Therefore, it is not currently known if Keytruda (pembrolizumab) contributes to a better or a longer life when used in this setting. Results from a future OS analysis are needed to confirm clinical benefit (OS data is not mature).

  o The FDA allows the use of EFS as a surrogate marker for the approval of drugs in early-stage breast cancer; however, its accuracy in predicting clinically relevant outcomes is controversial. [50] This scenario is analogous to the use of PFS (another radiographic surrogate endpoint) for drug approvals for advanced breast cancer where several medications were found to improve PFS without confirmation of any clinical benefit in follow up trials.

  o A recent publication analyzed EFS as a surrogate for OS in early breast cancer. The analysis included 7 studies for this surrogacy analysis. The authors concluded that although EFS moderately correlated with improved OS in early breast cancer in the neoadjuvant setting, the confidence intervals are wide, and the association was not significant. [50]

* The current NCCN guidelines list the use of adjuvant or neoadjuvant Keytruda (pembrolizumab) among potential treatment options for early-stage, high-risk TNBC. [6]

OTHER INVESTIGATIONAL USES

- Keytruda (pembrolizumab) is actively being studied to determine if there is benefit in treating other types of cancers including multiple myeloma (MM), and ovarian cancer. To date, studies are preliminary and ongoing and the risk versus potential for clinical benefit remains under investigation. [20]

- Adjuvant use in stage IIB and IIC (completely resectable) melanoma

  * Keytruda (pembrolizumab) received expanded approval for use as an adjuvant therapy for stage IIB and IIC melanoma. Previously it had only been approved for adjuvant use in stage IIIB and IIIC (later stages with nodal involvement) melanoma.

  * The standard of care for stage IIB and IIC melanoma has been wide excision and surveillance as there is no metastasis or nodal involvement in these early stages.

  * Approval for adjuvant Keytruda (pembrolizumab) in stage IIB and IIC melanoma is based on a RCT [KEYNOTE-716] that evaluated relapse-free survival (RFS) in patients who received either adjuvant Keytruda (pembrolizumab) or placebo after complete resection of their tumor for up to one year. [18]

    o A relative difference in RFS at 12-months in favor or Keytruda (pembrolizumab). Results are preliminary and there are no clinical outcomes reported to date.
The outcome of interest in this clinical setting is overall survival (OS). RFS has not been shown to be an accurate predictor of OS.

Mature survival data is not expected for many years because the prognosis for these early-stage melanoma patients is good, and they live for many years with five-year survival rates approaching 90%.

Based on current study results, fourteen patients would need to be treated with Keytruda (pembrolizumab) for one year for one patient to avoid a relapse at one year; however, only seven patients would need to be treated for one patient to discontinue treatment due to a severe adverse event by one year.

The NCCN cutaneous melanoma guideline lists both surveillance or Keytruda (pembrolizumab) as potential options for stage IIB or IIC melanoma. However, if Keytruda (pembrolizumab) is considered, the guideline states the need for careful assessment of risk versus benefit as there is currently no information evaluating its impact on overall survival in this population. [6]

* MSI-H Tumors (other than CRC and endometrial carcinoma)

Keytruda (pembrolizumab) is FDA approved as a treatment option for patients with any progressive MSI-H/dMMR solid tumor (“tumor agnostic”) when no satisfactory treatment alternatives are available. [8] However, currently there is insufficient evidence to establish the efficacy or safety of Keytruda (pembrolizumab) in patients with other MSI-H/dMMR tumors. [8,51,52]

The Accelerated approval of Keytruda (pembrolizumab) for MSI-H or dMMR tumors was based on preliminary tumor response [overall response rate (ORR)] and duration of response (DOR) data from a “basket trial” pooled analysis of 149 patients across five different early phase, open-label trials (90 patients with CRC and 59 non-CRC patients). [51,53]

Subjects enrolled in the trial had advanced solid tumors and at least one prior chemotherapy regimen.

This tumor agnostic approval includes use in many cancer types that were either not tested in the “basket trial” or were only tested in very low numbers (n < 14) of patients.

Fourteen types of solid tumors were represented in the non-CRC cohort of 59 patients. Nine tumor types were represented by only one or two patients. No patients with uterine cancer (leiomyosarcoma) were represented in the sample.

Subsequently, one non-randomized, single-arm Phase 2 trial evaluated Keytruda (pembrolizumab) for non-CRC MSI-H/dMMR solid tumors.

The trial enrolled 233 patients with 27 tumor types.

Similar to the basket trial above, ORR was used as the primary endpoint.

An ORR of 34% was reported. However, health outcomes are unknown.

Endometrial cancer was the most common tumor type (n=49), followed by gastric (n=24), and cholangiocarcinoma (n=22). However, insufficient...
details were reported to establish if the endometrial tumors were sufficiently treated with standard therapies (“treatment alternatives”).

* Although reported tumor response rates appear promising, it is not known if Keytruda (pembrolizumab) improves tumor response in all MSI-H/dMMR solid tumors, or positively impacts any clinically relevant outcome. Confirmatory studies are necessary to establish clinical benefit. Therefore, the use of Keytruda (pembrolizumab) for MSI-H/dMMR tumors (other than CRC and endometrial carcinoma, or as detailed in the coverage criteria) is considered investigational.

- **Ovarian cancer:**
  * The evidence for the use of Keytruda (pembrolizumab) is limited to a non-randomized, non-comparative phase 2 trial for advanced recurrent ovarian cancer [KEYNOTE-100]. Although this initial evidence of overall response rate (ORR) is promising, along with other posters reporting single-arm data, there is insufficient data at this time to establish an improvement in clinically meaningful endpoints in ovarian cancer such as survival or quality of life. Therefore, the use of Keytruda (pembrolizumab) for ovarian cancer is considered investigational.

- **Sarcoma (including STS, osteosarcoma):**
  * There is interest in the use of Keytruda (pembrolizumab) for various soft tissue sarcomas (STS) including liposarcoma, as well as osteosarcoma.
  * Keytruda (pembrolizumab) is included in the NCCN STS guidelines as an option for salvage therapy for certain types of STS, such as undifferentiated pleomorphic sarcoma (UPS). However, the recommendation is based on one phase 2 trial in STS and osteosarcoma which did not meet the primary endpoint.
  * A second trial in osteosarcoma also did not meet the primary endpoint. Additional trials are ongoing. Therefore, the use of Keytruda (pembrolizumab) for STS and osteosarcoma is considered investigational.

- **Small cell lung cancer (SCLC):**
  * Keytruda (pembrolizumab) received Accelerated approval for metastatic SCLC, based on cohort of patients from single-arm, open-label trials that evaluated tumor response rates as an endpoint with pretreated metastatic (after a platinum-based chemotherapy and at least one other prior systemic regimen).
  * However, subsequent trials [KEYNOTE-604] failed to demonstrate a proven health benefit and the company withdrew the FDA indication. Therefore, the use of Keytruda (pembrolizumab) for SCLC is considered investigational at this time.

- **Tumor mutational burden-high (TMB-H) solid tumors**
  * Keytruda (pembrolizumab) received Accelerated FDA approval in patients with solid tumors that have high tumor mutational burden (TMB-H, based on genetic testing) and who have no remaining satisfactory treatment options, based on a ‘basket trial’ in a small number of patients with tumors that were found to be
TMB-H. Accelerated approval means that no clinical benefit has yet been demonstrated. The available evidence is of very poor quality. Additional clinical trials are needed to establish clinical benefit.

- Patients were enrolled based on having TMB-H solid tumors. Inclusion was independent of tumor type or site. Pembrolizumab was given and tumor size monitored using x-rays, for overall response rate (ORR).
- Small sample size, heterogeneity of tumor types, and lack of clinical outcomes limit interpretation of the data for estimation of clinical benefit.
  - A very small number of types of tumors were represented, only nine at the time of the initial data cut. ORR varied widely across tumor types with some types showing no response (e.g., salivary, thyroid, and mesothelioma).
  - ORR has not been shown to accurately predict clinical benefit such as improved survival, quality of life, or symptom control.
- A high tumor mutational burden (TMB-H) was defined as having 10 or more mutations per megabase (mut/Mb) as determined by the FoundationOne CDx panel. The selection of 10 mut/Mb as a cutoff for administration of Keytruda (pembrolizumab) is arbitrary. Use of this definition is not associated with improvement in any clinically important outcome. Furthermore, this definition is based specifically on the FoundationOne CDx genetic test. Since there is no current standard for determining TMB-high status across different genetic tests, selection of appropriate patients may be confounded.
- TMB is heterogeneous both within and across different tumor types. The extrapolation of this evidence from this small sample of tumors across all tumor types is not a valid predictor of potential for benefit.

* The NCCN compendium generally aligns with the FDA label and recommends Keytruda (pembrolizumab) in TMB-high tumors when there are no other treatment options. However, for the reasons stated above, the use of Keytruda (pembrolizumab) in TMB-H tumors is considered investigational.

**Dosing**

- Keytruda (pembrolizumab) is administered via intravenous (IV) infusion as follows:

  * **Melanoma (unresectable or metastatic):** 200 mg IV every 3 weeks until disease progression.
  * **Adjuvant melanoma setting:** Doses up to 200 mg every 3 weeks until disease progression, for up to a maximum of 12 months. There is no evidence to establish the efficacy of use beyond 12 months in patients with resected melanoma.
  * **Adjuvant RCC setting:** Doses up to 200 mg every 3 weeks until disease progression, for up to a maximum of 17 cycles (51 weeks). There is no evidence to establish the efficacy of use beyond 51 weeks in patients with resected RCC.
  * **Early-stage TNBC:** neoadjuvant treatment with Keytruda (pembrolizumab) in combination with chemotherapy for 24 weeks (8 doses of 200 mg every 3 weeks or 4 doses of 400 mg every 6 weeks) or until disease progression or unacceptable
toxicity, followed by adjuvant treatment with Keytruda (pembrolizumab) as a single agent for up to 27 weeks (9 doses of 200 mg every 3 weeks or 5 doses of 400 mg every 6 weeks) or until disease recurrence or unacceptable toxicity.

* **Most all other indications**: 200 mg IV every 3 weeks until disease progression, intolerable AEs, or for up to 24 months in the absence of disease progression.

* **Hodgkin lymphoma or PMBCL, pediatrics**: 2 mg/kg (up to 200 mg per dose) IV every 3 weeks until disease progression, intolerable AEs, or for up to 24 months in the absence of disease progression.

* **Consolidated dosing**: pembrolizumab may be dosed 400 mg every 6 weeks for many labeled indications.

* **Dose interruptions**: For patients who have the course of therapy interrupted or doses delayed, dose authorization periods (date range of the authorization) may be extended to allow the full course (such as 12- or 24-months) to be completed, not to exceed the number of doses that would be given in a contiguous period.

* **Dosing beyond 24 months**: Most Keytruda (pembrolizumab) trials were specifically designed to administer a 24-month treatment course, at which time therapy was stopped and patients observed. However, in clinical practice, ongoing therapy (beyond 24 months) may be warranted in patients with advanced/metastatic disease who have a partial response to, and overall disease stability on Keytruda (pembrolizumab). Per the policy “Quantity limits,” pembrolizumab is coverable only “until disease progression.” Therefore, use beyond 24 months will not be authorized for patients with documented disease progression.

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### Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies

<table>
<thead>
<tr>
<th><strong>Programmed death receptor-1 (PD-1) inhibitors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jemperli (dostarlimab)</td>
</tr>
<tr>
<td>Keytruda (pembrolizumab)</td>
</tr>
<tr>
<td>Libtayo (cemiplimab-rwlc)</td>
</tr>
<tr>
<td>Opdivo (nivolumab)</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Programmed death-ligand 1 (PD-L1) inhibitor</strong></th>
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</thead>
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<tr>
<td>Bavencio (avelumab)</td>
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<tr>
<td>Imfinzi (durvalumab)</td>
</tr>
<tr>
<td>Tecentriq (atezolizumab)</td>
</tr>
</tbody>
</table>

*a Or as listed on the FDA.gov website.
Appendix 2: Definition for High-Risk of Renal Cell Carcinoma (RCC) Recurrence [32]

**Intermediate-High Risk**
- pT2, Grade 4 (histology) or sarcomatoid, N0, M0 (nodes negative, no metastases)
  OR
- pT3, Any Grade (histology), N0, M0 (nodes negative, no metastases)

**High-Risk**
- pT4, Any Grade 4 (histology), N0, M0 (nodes negative, no metastases)
  OR
- pT Any Stage, Any Grade (histology), N+, M0 (nodes positive, no metastases)

**M1 No Evidence of Disease (NED)**
RCC is present not only with the primary kidney tumor but also solid, isolated, soft tissue metastasis that can be completely resected at the time of nephrectomy

T = tumor; N = lymph nodes; M = metastases

### Cross References

- Molecular Analysis for Targeted Therapy of Non-Small Cell Lung Cancer (NSCLC), Medical Policy Manual, Genetic Testing Policy No. 56
- Adcetris, brentuximab vedotin, Medication Policy Manual, Policy No. dru264
- Bavencio, avelumab, Medication Policy Manual, Policy No. dru499
- Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500
- Inlyta, axitinib, Medication Policy Manual, Policy No. dru273
- Jemperli, dostarlimab, Medication Policy Manual, Policy No. dru673
- Lenvima, lenvatinib, Medication Policy Manual, Policy No. dru398
- Libtayo, cemiplimab-rwlc, Medication Policy Manual, Policy No. dru565
- Nexavar, sorafenib, Medication Policy Manual, Policy No. dru134
- Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390
- Tecentriq, atezolizumab, Medication Policy Manual No. dru463
- Yervoy, ipilimumab, Medication Policy Manual, Policy No. dru238
- Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620

### Codes

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<thead>
<tr>
<th>Codes</th>
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<tr>
<td>HCPCS</td>
<td>J9271</td>
<td>Injection, pembrolizumab (Keytruda), 1 mg</td>
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</table>
References


60. NCCN Drugs and Biologics Compendium (NCCN Compendium) [Updated regularly] [cited with policy updates and as necessary]. Available from: https://www.nccn.org/professionals/drug_compendium/content/.
## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>• Added coverage for the following newly FDA approved indications:</td>
</tr>
<tr>
<td></td>
<td>- Adjuvant use in resected renal cell carcinoma (RCC) with a clear cell component and a high risk of recurrence when there has been no prior systemic therapy.</td>
</tr>
<tr>
<td></td>
<td>- MSI-H/dMMR endometrial carcinoma after at least one prior systemic therapy. Note: Removed from list of investigational uses.</td>
</tr>
<tr>
<td></td>
<td>• Added adjuvant use in stage IIB and IIC melanoma as investigational.</td>
</tr>
<tr>
<td>3/18/2022</td>
<td>Added coverage criteria for high-risk, early-stage TNBC and removed it from the “Not Medically Necessary” section.</td>
</tr>
<tr>
<td>10/15/2021</td>
<td><strong>Effective 11/15/21:</strong></td>
</tr>
<tr>
<td></td>
<td>• Added coverage criteria for newly FDA approved indications:</td>
</tr>
<tr>
<td></td>
<td>- Front-line use in advanced, HER2-positive gastric and GEJ cancer when used as an add-on to trastuzumab plus chemotherapy</td>
</tr>
<tr>
<td></td>
<td>- Front-line use in advanced esophageal or GEJ cancer when patient not candidate for surgical resection or definitive chemoradiotherapy, PD-L1 CPS &gt; 10, and given in combination with a platinum plus fluoropyrimidine</td>
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<tr>
<td></td>
<td>- Advanced RCC when used in combination with Lenvima (lenvatinib).</td>
</tr>
<tr>
<td></td>
<td>- Early-stage, high-risk TNBC will be considered ‘not medically necessary’ and therefore not covered because clinical benefit not yet established.</td>
</tr>
<tr>
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<td>• Added coverage in advanced triple negative breast cancer (TNBC) as first-line therapy in combination with chemotherapy when PD-L1 CPS &gt; 10 based on newly available overall survival data.</td>
</tr>
<tr>
<td></td>
<td>• Updated coverage in cervical cancer to cover in front-line setting when PD-L1 CPS &gt; 1 when administered in combination with front-line chemotherapy based on newly available overall survival data.</td>
</tr>
<tr>
<td></td>
<td>• Simplified criteria for endometrial carcinoma criteria to be agnostic to combination therapy.</td>
</tr>
<tr>
<td></td>
<td>• Removed coverage for use as a third- or subsequent-line therapy for advanced gastric cancer with PD-L1 CPS &gt; 1 because clinical benefit was not shown in confirmatory trials and the indication withdrawn by manufacturer.</td>
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<tr>
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<td><strong>Effective 2/1/22:</strong> Change reauthorization from ‘may’ to ‘shall.’ Operationally, all approvals will be for six months. Ongoing therapy (beyond six months) will be subject to reauthorization review every six months, for documentation of disease stability or improvement and lack of disease progression.</td>
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<tr>
<td>Revision Date</td>
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</table>
| 4/21/2021     | • Added coverage criteria for cSCC, a newly approved FDA indication (effective 5/15/2021).  
• Added PD-L1-expressing locally advanced unresectable/metastatic TNBC to ‘Not Medically Necessary’ uses, given the lack of benefit over coverable treatment alternatives (effective 5/15/2021).  
• Simplification of criteria for cHL and CRC MSI-H criteria (new expanded FDA indications).  
• Simplified criteria for: GEJ, HNSCC, melanoma, PMBCL, NSCLC, UC/NMIBC, and endometrial carcinoma, for operational clarity (no change to intent).  
• Reformat of coverage criteria to table format.  
• Clarified step therapy intent for HCC to HCC-TKI, including Lenvima (lenvatinib).  
• Removed coverage criteria for SCLC (FDA indication withdrawn).  
• Updated quantity limitations for new indications.  
• Updated ‘Investigational uses’ (added SCLC). |
| 10/28/2020    | Updated policy with new TMB-H indication. This indication is considered an ‘investigational use’ due to the very low quality of the evidence and the lack of proven benefit. |
| 06/15/2020    | • Removed references to brand Avastin, Herceptin, and Rituxan from policy to account for upcoming changes in biosimilars policy (dru620).  
• Added triple-negative breast cancer (TNBC) neoadjuvant/adjuvant data to the “Investigational Uses” section. |
| 4/22/2020     | Added coverage criteria for non-muscle invasive bladder cancer (NMIBC), a new FDA indication. |
| 1/22/2020     | • Added continuation of therapy (COT) criteria.  
• Simplified coverage criteria for NSCLC (metastatic disease and no prior checkpoint inhibitor therapy)  
• Added coverage for the following new coverable uses: SCLC, esophageal cancer, use in the front-line treatment of HNSCC (previously covered only as a subsequent-line therapy), endometrial cancer [in combination with Lenvima (lenvatinib)], and anal SCC - an off-label use, based on the lack of other treatment options and emerging preliminary evidence.  
• Simplified coverage criteria for resectable melanoma.  
• Updated quantity limitation section with new indications. |
<p>| 7/24/2019     | Updated policy with criteria for coverage in front-line RCC, a new FDA-approved indication; and removed RCC from the list of investigational conditions (effective 8/15/2019). |</p>
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<th>Revision Summary</th>
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</table>
| 04/25/2019    | • Added coverage for squamous metastatic NSCLC in combination with chemotherapy, hepatocellular carcinoma (after sorafenib), and adjuvant treatment of melanoma following complete resection (new indications; effective 07/01/2019).  
  • Updated coverage criteria for NSCLC, for ease of administration.  
  • Updated coverage criteria for Merkel Cell Carcinoma, for consistency. |
| 01/08/2019    | • Added coverage for metastatic cervical cancer and recurrent or refractory PMBCL (new indications).  
  • Updated quantity limits to include the new indications.  
  • Updated formatting (no change to content/intent). |
| 07/20/2018    | • Updated criteria under urothelial carcinoma to clarify coverage in the front-line setting for cisplatin-ineligible patients only when PD-L1 expressing and any platinum-ineligible patients, regardless of PD-L1 expression. |
| 04/20/2018    | • Added coverage criteria for gastric or gastroesophageal adenocarcinoma.  
  • Aligned coverage in Hodgkin lymphoma with Opdivo coverage criteria.  
  • Updated quantity limits to include new indication.  
  • Clarified authorization is valid “until disease progression” (no change to intent).  
  • Updated list of conditions considered investigational. |
| 10/13/2017    | • Added criteria for one new indication: MSI-H colorectal cancer.  
  • Updated covered quantity for this new indication.  
  • Updated uses considered investigational. |
| 06/09/2017    | • Added criteria for three new indications: classical Hodgkin lymphoma, urothelial carcinoma, and combination use with chemotherapy in the front-line treatment of metastatic nonsquamous NSCLC.  
  • Updated covered quantities and durations for these new indications. |
| 03/10/2017    | • Clarified NSCLC criteria such that prior use of a PD-L1 inhibitor precludes coverage.  
  • A maximum of 24 months of therapy was defined for use in NSCLC based available evidence and FDA-labeling. |
| 02/17/2017    | • Added coverage criteria for metastatic NSCLC in the first-line treatment setting.  
  • Updated quantity limits for NSCLC based on new FDA-labeled dosing. |
<table>
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<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 11/11/2016    | • Added coverage criteria for recurrent or metastatic HNSCC, a newly approved indication for Keytruda (pembrolizumab).  
• Updated quantity limits to reflect new dosing in HNSCC.  
• Lowered the level of PD-L1 expression required in the subsequent-line metastatic NSCLC setting based on updated package labeling.  
• Added first-line use of pembrolizumab in metastatic NSCLC, a new FDA indication, as not medically necessary.  
• Updated uses considered investigational.  
• Updated Appendices and cross-referenced policies. |
| 3/11/2016     | • Added coverage criteria for metastatic NSCLC, a newly approved indication for Keytruda (pembrolizumab).  
• Combined several appendices and added additional information pertaining to NSCLC. |
| 12/11/2015    | • Clarified that sequential therapy of PD-1 inhibitors (Opdivo/Keytruda) is not a covered use.  
• Add Appendix 1, with a list of available PD-1 inhibitors.  
• Add Appendix 3, with a list of other targeted therapies for melanoma. |
| 11/13/2014    | New policy. |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru382

**Topic:** Alpha-1 proteinase inhibitors:
- Aralast NP
- Glassia
- Prolastin-C
- Zemaira

**Date of Origin:** December 12, 2014

**Committee Approval Date:** October 15, 2021

**Effective Date:** November 15, 2021

**Next Review Date:** March 2022

---

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Alpha-1 proteinase inhibitors (Aralast NP, Glassia, Prolastin-C and Zemaira) are preparations containing alpha-1 antitrypsin (A1AT), a naturally occurring enzyme purified from human blood. They are used in the treatment of alpha-1 antitrypsin deficiency (AATD), a rare genetic disorder that can lead to disease of the lungs (emphysema), and administered by intravenous infusion.
Policy/Criteria

Most contracts require pre-authorization approval of alpha-1 proteinase inhibitors (Aralast NP, Glassia, Prolastin-C, Zemaira), prior to coverage.

I. Continuation of therapy (COT): Alpha-1 proteinase inhibitors may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Alpha-1 proteinase inhibitors may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes), that criteria A, B, and C below are met.

A. The diagnosis was established by, or in consultation with, a pulmonologist.

AND

B. A confirmed diagnosis of alpha-1 antitrypsin deficiency (AATD) outflow obstruction (emphysema) and one of the following (1 or 2):

1. FEV₁ (post bronchodilation) between 30-65%.

OR

2. Rapid decline in lung function, defined as a FEV₁ decline of more than 120ml over 12 months.

AND

C. Pretreatment alpha-1 antitrypsin (AAT) serum level less than 11 micromol/L (less than 80 mg/dL measured by radial immunodiffusion or less than 50mg/dL measured by nephelometry).

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers alpha-1 proteinase inhibitors coverable only under the medical benefit (as provider-administered medications).

B. When pre-authorization is approved, alpha-1 proteinase inhibitor doses up to 60 mg/kg every week will be authorized.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Use of an alpha-1 proteinase inhibitors is considered investigational when used for all other conditions, including but not limited to:

A. AATD without airflow obstruction (without emphysema), such as AATD-related liver disease or other AATD-related complications.

B. Use in combination with other alpha1-proteinase inhibitor products.

Position Statement

- All alpha-1 proteinase inhibitor (alpha1-PI) products (Aralast NP, Glassia, Prolastin-C, and Zemaira) appear to be similar in biologic activity for slowing progression of emphysema in patients with alpha-1 antitrypsin deficiency (AATD).

- Although the overall net health benefit of alpha1-PI therapy is uncertain, treatment options for patients with moderate to severe emphysema are limited to symptomatic management, aside from lung transplantation.

- There is no evidence of clinically meaningful differences in safety or efficacy between alpha1-PI products. They vary in their reconstitution, time of infusion and storage, and have slight differences in protein composition and chemical structures; however, these differences have not been linked to specific clinical outcomes.

- Consensus guidelines recommend use of alpha1-PI replacement therapy (“augmentation therapy”) for treatment of patients with airflow obstruction from AATD, but do not differentiate between products.

* Patients with heterozygous phenotypes should not be treated with alpha1-PIs if the AAT level exceeds 11 micromol/L.

* Guidelines recommend augmentation therapy in patients with an FEV₁ between 30% and 65% or those experiencing a rapid decline in lung function (>120ml/year).

  - There is no high-quality evidence to establish the efficacy of augmentation therapy in patients with FEV₁ less than 30% or greater than 65%, and use in this population is not currently recommended.

- All alpha1-PIs are approved for 60 mg/kg once a week dosing.
**Background** [1,2]

- Emphysema, from any cause, is a progressive, non-curable disease, leading to decline in lung function (FEV\(_1\)), exacerbation of symptoms, decline in ability to function, and death.
- Alpha-1 antitrypsin deficiency (AATD) is a rare inherited genetic disorder, but leads to emphysema in approximately 40,000-60,000 Americans (2-3% of all emphysema patients).
- Smoking increases the risk of emphysema in patients with AATD.
- Deficient alpha-1 antitrypsin levels (A1AT) levels can lead to uninhibited lung and liver tissue breakdown from elastase and manifestations of emphysema, as well as hepatic cirrhosis.
- The ideal A1AT level with alpha1-PI repletion is uncertain. A1AT levels alone do not predict disease, as patients with very low A1AT levels can have normal lung function.
- There are four alpha1-PI products (Aralast NP, Glassia, Prolastin-C, and Zemaira) available for repletion of A1T1 levels (“augmentation therapy”), with a goal of slowing disease progression. [1,2]

**Clinical Efficacy**

- Alpha1-PIs replete A1AT levels, a surrogate endpoint and the basis for their FDA approval; however, their effect on attenuation of emphysema progression with clinically meaningful efficacy endpoints (e.g. survival, quality of life) is uncertain. [3]
- Augmentation therapy with alpha1-PIs has not yet been proven to provide benefit in reversing or decreasing outflow obstruction (emphysema) associated with AATD. [4]
- There is no evidence that there is any difference in efficacy between the alpha1-PI products.
- Although there is low certainty in the evidence that alpha1-PI therapy improves health outcomes in patients with emphysema due to AATD, the products in the class appear to be similar in biologic activity.
- Despite the insufficient evidence for health outcomes with alpha1-PIs, treatment options for patients with moderate to severe emphysema are limited to symptomatic management, aside from lung transplantation. [4,5]
- There is no evidence to support the use of doses greater than 60 units/kg weekly. One small, short-term (8-week), safety and pharmacokinetic trial of higher doses of alpha1-PI (Prolastin C) in patients with AATD resulted in higher steady state levels of alpha-1 PI concentrations. However, the effect of these higher alpha-1 PI concentrations on long-term emphysema disease progression is unknown. [6]
- Treatment guidelines recommended use of augmentation therapy with alpha1-PIs for patients with airflow obstruction from AATD and FEV\(_1\) between 30% and 65%, but do not differentiate between products. Patients should be confirmed nonsmokers or ex-smokers and plasma AAT levels less than 11 mMol/L. Patients with a heterozygous phenotype and AAT levels that exceed 11 mMol/L should not be treated with alpha1-PI augmentation therapy. [5,7]
- There is no evidence that augmentation therapy with alpha1-PIs are effective for treatment of AATD-related liver disease, including, hepatic cirrhosis. Guidelines recommend against the use of alpha1-PIs for AATD-related liver or other AATD-related diseases.

Safety
- Adverse events with alpha1-PIs are generally mild, including headache and malaise. [8]
- There is no conclusive evidence of difference in safety or immunogenicity between alpha1-PIs. [9]

Dosing and Administration [8]
- All alpha1-PIs are dosed once weekly via intravenous infusion.
- Alpha1-PI (Glassia) and Alpha-PI (Prolastin-C) are the only liquid preparations.

<table>
<thead>
<tr>
<th>Codes</th>
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<td>HCPCS</td>
<td>J0257</td>
<td>Glassia, Alpha 1-proteinase inhibitor, human 10 mg IV, liquid</td>
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<tr>
<td>HCPCS</td>
<td>J0256</td>
<td>Aralast NP, Prolastin-C, Zemaira, Alpha 1-proteinase inhibitor, human 10 mg IV, powder</td>
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Appendix 1. Alpha-1 Proteinase Inhibitor Product Characteristics [10-13]

<table>
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<tr>
<th>Product</th>
<th>Aralast NP</th>
<th>Glassia</th>
<th>Prolastin-C</th>
<th>Zemaira</th>
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<td>Dosage form</td>
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<td>Rate of infusion (mL/kg/minute)</td>
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<td>0.2</td>
<td>0.08</td>
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<td>15 minutes</td>
<td>15 minutes</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Stability after mixing</td>
<td>3 hours</td>
<td>Premixed</td>
<td>3 hours</td>
<td>3 hours</td>
</tr>
<tr>
<td>Refrigeration required</td>
<td>No</td>
<td>Yes; stable for 1 month at room temperature</td>
<td>Yes; stable for 1 month at room temperature</td>
<td>No</td>
</tr>
<tr>
<td>Vial size (gm)</td>
<td>0.5 and 1 gm</td>
<td>1 gm/50 mL</td>
<td>1 gm</td>
<td>1, 4, and 5 gm</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
References


10. Aralast NP [Prescribing Information]. Westlake Village, CA: Baxter Healthcare Corporation; 2/2018


12. Prolastin-C [Prescribing Information]. Triangle Park, NC: Grifols Therapeutics; 8/2018

**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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<tbody>
<tr>
<td>10/15/2021</td>
<td>Updated benefit language in Administration section. Added Prolastin-C to Dosage and Administration section to show that it is also a liquid formulation.</td>
</tr>
<tr>
<td>4/22/2021</td>
<td>No criteria changes with this annual update</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>1/31/2019</td>
<td>Added diagnostic criteria requirements in line with clinical guidelines. Clarified documentation requirements.</td>
</tr>
<tr>
<td>02/16/2018</td>
<td>No criteria changes with this annual update</td>
</tr>
<tr>
<td>12/16/2016</td>
<td>No criteria changes with this annual update</td>
</tr>
<tr>
<td>12/11/2015</td>
<td>No criteria changes</td>
</tr>
<tr>
<td>12/14/2014</td>
<td>New policy</td>
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</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru383

Topic: Vectibix, panitumumab

Date of Origin: May 1, 2015

Committee Approval Date: July 22, 2020

Next Review Date: July 2021

Effective Date: July 1, 2020

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Panitumumab (Vectibix) is a monoclonal antibody used to treat metastatic colorectal cancer (CRC).
Policy/Criteria

Most contracts require pre-authorization approval of panitumumab (Vectibix) prior to coverage.

I. Continuation of therapy (COT): Panitumumab (Vectibix) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A. and B. below are met.

   A. The patient is established on this therapy AND one of the following situations applies (criteria 1. or 2. below):

      1. Prior to current health plan membership AND the medication was covered by another health plan.
      
      Note: If the diagnosis is not listed in the coverage criteria below, written documentation of coverage must be provided, such as an approval letter or paid claim.
      
      OR

      2. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.

   AND

   B. If the diagnosis is not listed in the coverage criteria below, documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria, is provided.

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. Panitumumab (Vectibix) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming a diagnosis of metastatic colorectal cancer (CRC) and no RAS mutation is present (for use with KRAS and NRAS wild type tumors only).

III. Administration, Quantity Limitations, and Authorization Period

   A. Regence Pharmacy Services does not consider panitumumab (Vectibix) to be a self-administered medication.

   B. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Panitumumab (Vectibix) is considered investigational when used for all other conditions, including but not limited to:

   A. When used concomitantly with any other targeted therapy, including, but not limited to, bevacizumab

   B. Biliary tract cancer
C. Breast cancer  
D. Cervical cancer  
E. Esophageal adenocarcinoma  
F. Gastric cancer  
G. Non-small cell lung cancer (NSCLC)  
H. Ovarian cancer  
I. Pancreatic cancer  
J. Renal cell carcinoma  
K. Head and neck squamous cell carcinoma (HNSCC)

**Position Statement**

- Panitumumab (Vectibix), an intravenously administered monoclonal antibody that targets epidermal growth factor receptor (EGFR), has been shown to be safe and effective when used in the treatment of metastatic colorectal cancer (CRC) when no RAS mutation is present.

- The intent of this policy is to cover panitumumab (Vectibix) for the indications, regimen, and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.

- In CRC, mutations in a specific protein, the RAS protein, are associated with resistance to panitumumab (Vectibix). Therefore, panitumumab (Vectibix) therapy is not effective in CRC when RAS mutations are present (i.e. only effective in KRAS and NRAS wild-type tumors).

- Panitumumab (Vectibix) is being studied in several other types of cancers that overexpress EGFR. However, the evidence is preliminary and larger studies are needed to establish safety and efficacy of panitumumab (Vectibix) in these cancers.

**Regence Pharmacy Services** performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

**Clinical Efficacy**

**COLORECTAL CANCER**

- One large, randomized trial and a high-quality systematic review have evaluated the efficacy of panitumumab (Vectibix) in colorectal cancer (CRC) in different settings.

  * No difference in overall survival was observed between patients with previously untreated (treatment naïve) KRAS wild-type metastatic CRC who received panitumumab plus chemotherapy (FOLFOX) versus chemotherapy alone (FOLFOX). [1]
* In the second-line setting and beyond, there was no difference in overall survival (OS) observed between panitumumab (Vectibix) monotherapy and best supportive care in KRAS wild-type metastatic CRC. [2]

- A small phase II comparative study evaluated add-on panitumumab (Vectibix) versus add-on bevacizumab in treatment naïve KRAS wild-type metastatic CRC. [3]
  * There was no difference in progression-free survival reported between groups.
  * There was a trend toward improved overall survival with panitumumab (Vectibix) relative to bevacizumab; however, median overall survival has not yet been reached.

- A study comparing panitumumab (Vectibix) monotherapy with cetuximab (Erbitux) monotherapy in patients with KRAS wild-type metastatic CRC who had disease progression or intolerance to several chemotherapy regimens (fluorouracil, oxaliplatin-, and irinotecan-based regimens) detected no difference in OS between the two therapies. [4]

- Further retrospective and prospective analyses of clinical trials of panitumumab (Vectibix) in metastatic CRC demonstrated improvements in overall survival in patients with wild-type NRAS when treated with panitumumab (Vectibix) plus best supportive care compared to patients treated with best supportive care alone.

- The National Comprehensive Cancer Network (NCCN) Colon Cancer and Rectal Cancer guidelines list panitumumab (Vectibix) as an option for advanced or metastatic CRC when given in combination with FOLFOX, FOLFIRI, or irinotecan when no KRAS or NRAS mutation is present. [5,6]

- There is insufficient evidence to support the use of panitumumab (Vectibix) concomitantly with any other targeted therapy, including, but not limited to, bevacizumab.

OTHER CANCERS

- Panitumumab (Vectibix) is being studied in a variety of other cancers, including, but not limited to, non-small cell lung cancer (NSCLC), head and neck squamous cell carcinoma (HNSCC), and renal cell carcinoma (RCC). [7]
  
  * **NSCLC:** A small (n = 19) open-label, dose-escalation phase 2 trial found that panitumumab (Vectibix) in combination with standard chemotherapy was active in the treatment of advanced NSCLC. Larger, well-controlled trials are needed to establish the safety and efficacy of panitumumab (Vectibix) for NSCLC. [8]

  * **RCC:** Panitumumab (Vectibix) demonstrated minimal activity in the treatment of metastatic renal cell carcinoma in an open-label, multicenter, dose-escalating phase 2 trial (n = 88). [8]

  * **HNSCC:** Although panitumumab (Vectibix) has been extensively evaluated in HNSCC, it should not be substituted for cetuximab (Erbitux) in HNSCC.
    - When panitumumab (Vectibix) was added to cisplatin-based chemotherapy in patients with recurrent or metastatic HNSCC (SPECTRUM study), there was no improvement in overall survival (OS) over chemo-therapy alone, and grade 3 and 4 adverse effects were more frequent. [9]
In a study comparing panitumumab (Vectibix) plus radiotherapy with cisplatin plus radiotherapy (CONCERT-2 study) in patients with unresected, locally advanced HNSCC who had received no prior therapy, local-regional control of the disease at 2 years was inferior in the panitumumab (Vectibix) treatment arm. [10]

A second study (CONCERT-1 study) comparing (Vectibix) plus chemoradiotherapy with chemoradiotherapy alone showed similar results. [11]

A phase 2 trial comparing docetaxel/cisplatin with or without panitumumab ( Vectibix) as a first-line therapy in patients with recurrent or metastatic HNSCC demonstrated a small numerical improvement in progression-free survival (PFS) in the panitumumab (Vectibix) treatment arm; however, there was no difference in OS, [12]

The NCCN head and neck treatment guideline does not recommend panitumumab ( Vectibix) as a treatment option for HNSCC. [13]

Safety [14]

* Panitumumab (Vectibix) labeling contains a boxed warning for dermatologic toxicity.
* Other potentially serious safety concerns with panitumumab (Vectibix) include pulmonary fibrosis/interstitial lung disease, electrolyte depletion, ocular toxicity, and increased mortality with chemotherapy.

Dosing and Administration [14]

* Panitumumab (Vectibix) is given as an intravenous infusion every 14 days.

### Cross References

<table>
<thead>
<tr>
<th>Non-Preferred Products with Available Biosimilars/Reference Products (bevacizumab, rituximab, trastuzumab), Medication Policy Manual, Policy No. dru620</th>
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</tr>
<tr>
<td>Cyramza, ramucirumab, Medication Policy Manual No. dru355</td>
</tr>
<tr>
<td>Erbitux, cetuximab, Medication Policy Manual, Policy No. dru187</td>
</tr>
<tr>
<td>Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367</td>
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<tr>
<td>Lonsurf, trifluridine/tipiracil, Medication Policy Manual, Policy No. dru434</td>
</tr>
<tr>
<td>Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390</td>
</tr>
<tr>
<td>Stivarga, regorafenib, Medication Policy Manual, Policy No. dru284</td>
</tr>
<tr>
<td>Yervoy, ipilimumab, Medication Policy Manual No. dru238</td>
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<tr>
<td>Zaltrap, ziv-aflibercept, Medication Policy Manual, Policy No. dru279</td>
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<td>Codes</td>
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</table>

References


September 1, 2022 © 2020 Regence. All rights reserved. These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). Removed references to brand Avastin to account for upcoming changes to biosimilars policy (dru620).</td>
</tr>
</tbody>
</table>
| 7/24/2019     | • Updated policy with standard language (no change to policy intent).  
• Add use in combination with any other targeted therapy, including, but not limited to, bevacizumab to the list of Investigational uses. |
| 11/16/2018    | No criteria changes with this annual update |
| 11/10/2017    | Clarified criteria to include wild-type NRAS |
| 8/12/2016     | No criteria changes with this annual update. |
| 1/8/2016      | No criteria changes. |

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru385

Topic: Complement Inhibitors
- Empaveli, pegcetacoplan
- Soliris, eculizumab
- Tavneos, avacopan
- Ultomiris, ravulizumab-cwvz

Date of Origin: January 19, 2015

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Complement inhibitors are medications that bind to and inhibit the complement protein, preventing proteins from destroying red blood cells. They are used to treat specific rare blood and inflammatory disorders.
Policy/Criteria
Most contracts require pre-authorization approval of complement inhibitors prior to coverage.

I. Continuation of therapy (COT): Complement inhibitors may be considered medically necessary for COT when criterion A, B, or C, AND D AND E below is met.
   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      
      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      
      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   AND

   D. Soliris (eculizumab) OR Ultomiris (ravulizumab-cwvz) only: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

   AND

   E. “Administration, Quantity Limitations, and Authorization Period” below applies, as well as “Investigational Uses” for combination therapy.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Complement inhibitors may be considered medically necessary when clinical documentation (including, but not limited to chart notes) confirming that criteria A and B below are met.
   A. Soliris (eculizumab) OR Ultomiris (ravulizumab-cwvz) only: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

   AND
B. At least one of the following diagnostic criterion 1 through 5 below is met.

1. **Empaveli (pegcetacoplan), Soliris (eculizumab), OR Ultomiris (ravulizumab-cwvz):** Paroxysmal nocturnal hemoglobinuria (PNH) when both criteria a and b below are met:
   a. The diagnosis has been confirmed by high sensitivity flow cytometry and established by or in consultation with a specialist in hematology.
   AND
   b. One of the following (criterion i or ii) below are met:
      i. Transfusion-dependence prior to initiation of complement inhibitor treatment.
      PLEASE NOTE: Transfusion-dependence is defined as at least one transfusion in the previous 24 months due to documented hemoglobin < 9 g/dL in patients with symptoms from anemia or < 7 g/dL regardless of symptoms.
      OR
      ii. A history of a major adverse vascular event from thromboembolism, including but not limited to: deep vein thrombosis (DVT), pulmonary embolism (PE), myocardial infarction (MI), ischemic stroke, peripheral arterial disease (PAD), and/or Budd-Chiari syndrome.

   OR

2. **Soliris (eculizumab) OR Ultomiris (ravulizumab-cwvz):** Atypical hemolytic uremic syndrome (aHUS) [a form of complement-associated thrombotic microangiopathy (TMA)] when criteria a and b below are met:
   a. The diagnosis has been established by or in consultation with a specialist in hematology or nephrology.
   AND
   b. Common causes of typical hemolytic uremic syndrome have been ruled out, including both of the following (criteria i and ii):
      i. Infectious causes of HUS, including Shiga toxin-related hemolytic uremic syndrome has been ruled out.
      AND
      ii. Thrombotic thrombocytopenic purpura (TTP) has been ruled out [confirmed by a disintegrin and metalloprotease with thrombospondin type 1 motif, 13 (ADAMTS13) activity ≥10%].

   OR

3. **Soliris (eculizumab) OR Ultomiris (ravulizumab-cwvz):** Refractory myasthenia gravis (MG) when criteria a through g below are met:
a. The diagnosis has been established by or in consultation with a neurologist who is a sub-specialist in neuromuscular disorders.

AND

b. A positive serologic test for anti-acetylcholine receptor (anti-AChR) antibodies.

AND
c. Presence of generalized myasthenia gravis symptoms.

AND
d. Prior to starting Soliris (eculizumab) or Ultomiris (ravulizumab-cwvz) therapy, documentation of a myasthenia gravis activities of daily living (MG-ADL) score of greater than or equal to 5.

AND
e. The prescriber has evaluated the patient’s current medication list for drugs that may unmask or worsen myasthenia gravis (see Appendix 1) and such drugs have been discontinued, unless documented to be medically contraindicated to discontinue.

AND
f. Pyridostigmine has been ineffective or not tolerated unless there is a documented medical contraindication to use.

AND
g. Standard MG treatment, given continuously over the last 365 days, is documented as ineffective (lack of MG symptom control as verified by a MG scoring tool), unless all options listed below are documented as medically contraindicated or not tolerated. Standard MG therapy is defined as use of all three of the following (criteria i, ii, and iii):

i. At least two immunosuppressive therapies (ISTs) (including azathioprine, cyclosporine, mycophenolate, tacrolimus, methotrexate, or cyclophosphamide), either in combination or as monotherapies.

PLEASE NOTE: Worsening of MG symptoms during IST dose taper is not considered documentation of “ineffective.”

AND

ii. At least one of the following criteria (a or b) below are met:

a) Chronic intravenous immune globulin (IVIG), given at least monthly over at least the past six months.

PLEASE NOTE: Use of short-term IVIG as needed for myasthenic crisis will not satisfy this criterion).

OR

b) Plasmapheresis/plasma exchange (PLEX), given at least four times in the past 12 months without symptom control.
iii. The patient has had a thymectomy, unless documented as medically contraindicated.

4. **Soliris (eculizumab) only: Neuromyelitis Optica Spectrum Disorder** (NMOSD) when criteria a through d below are met:
   a. The diagnosis has been established by or in consultation with a neurologist.
   b. Documentation of a positive serologic test for aquaporin-4 immunoglobulin (AQP4-IgG) antibodies.
   c. Rituximab has been ineffective as documented by symptom relapse after completion of induction (at least one month after the first dose of rituximab) or not tolerated unless there is documented medical contraindication to use.
   d. Enspryng (satralizumab) OR Uplizna (inebilizumab) has been ineffective as documented by symptom relapse or not tolerated unless there is documented medical contraindication to use.

5. **Tavneos (avacopan) only: Active severe anti-neutrophil cytoplasmic autoantibody (ANCA) associated vasculitis (granulomatosis with polyangiitis [GPA] and microscopic polyangiitis [MPA])** when criteria a through e are met:
   a. The diagnosis has been established by or in consultation with a rheumatologist.
   b. The patient has been screened for hepatitis B virus and severe hepatic impairment and is negative for both.
   c. The patient has an EGFR ≥15ml/min and does not require dialysis or a kidney transplant.
   d. The patient will continue to receive standard of care therapy, including but not limited to, rituximab, cyclophosphamide, glucocorticoids, azathioprine, methotrexate, or mycophenolate mofetil.
   e. The patient has previously failed induction with standard therapy (rituximab or cyclophosphamide with glucocorticoids) or has relapsed since previously achieving remission within the previous 12 months.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Empaveli (pegcetacoplan) and Tavneos (avacopan) coverable only under the pharmacy benefit (as self-administered medications).

B. Pharmacy Services considers Soliris (eculizumab) or Ultomiris (ravulizumab-cwvz) coverable only under the medical benefit (as provider-administered medications).

C. When pre-authorization is approved, complement inhibitors will be covered in quantities as follows:

1. **Initial Authorization**: Up to the dose and duration, as listed below in Table 1:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Soliris (eculizumab)</th>
<th>Ultomiris (ravulizumab-cwvz)</th>
<th>Empaveli (pegcetacoplan)</th>
<th>Tavneos (avacopan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNH</td>
<td>Up to <strong>nine</strong> infusions in a <strong>12-week period</strong>, based on weekly dosing for five weeks, followed by maintenance dosing every 2 weeks thereafter.</td>
<td>Pediatrics (&lt;20 kg): Up to <strong>eight</strong> infusions in a <strong>6-month period</strong>, based on a loading dose at week 0, followed by maintenance dosing at week 2 and every 4 weeks thereafter.</td>
<td>Up to <strong>24</strong> (1080 mg) vials in a <strong>12-week period</strong>, based on twice weekly dosing.</td>
<td>n/a</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Table 1. Initial Authorization

<table>
<thead>
<tr>
<th>Indication</th>
<th>Soliris (eculizumab)</th>
<th>Ultomiris (ravulizumab-cwvz)</th>
<th>Empaveli (pegcetacoplan)</th>
<th>Tavneos (avacopan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>aHUS</td>
<td>Pediatrics (&lt;10 kg): Up to five infusions in a 12-week period, based on induction dosing weekly for two weeks, followed by maintenance dosing every 3 weeks thereafter. Pediatrics (10 kg to &lt;20 kg): Up to seven infusions in a 12-week period, based on induction dosing weekly for two weeks, followed by maintenance dosing every 2 weeks thereafter. Pediatrics (20 kg to &lt;40 kg): Up to eight infusions in a 12-week period, based on induction dosing weekly for three weeks, followed by maintenance dosing every 2 weeks thereafter. Adults and Pediatrics (≥20 kg): Up to nine infusions in a 12-week period, based on induction dosing weekly for five weeks, followed by maintenance dosing every 2 weeks thereafter.</td>
<td>Pediatrics (&lt;20 kg): Up to eight infusions in a 6-month period, based on a loading dose at week 0, followed by maintenance dosing at week 2 and every 4 weeks thereafter. Adults and Pediatrics (≥20 kg): Up to five infusions in a 6-month period, based on a loading dose at week 0, followed by maintenance dosing at week 2 and every 8 weeks thereafter.</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Indication</th>
<th>Soliris (eculizumab)</th>
<th>Ultomiris (ravulizumab-cwvz)</th>
<th>Empaveli (pegcetacoplan)</th>
<th>Tavneos (avacopan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG</td>
<td>Up to <strong>nine</strong> infusions in a <strong>12-week period</strong>, based on induction dosing weekly for five weeks, followed by maintenance dosing every 2 weeks thereafter.</td>
<td>Up to <strong>five</strong> infusions in a <strong>6-month period</strong>, based on a loading dose at week 0, followed by maintenance dosing at week 2 and every 8 weeks thereafter.</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>NMOSD</td>
<td>Up to <strong>fifteen</strong> infusions in a <strong>24-week period</strong>, based on induction dosing weekly for five weeks, followed by maintenance dosing every 2 weeks thereafter.</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>ANCA-AV</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Up to 3 tablets twice daily (not to exceed 60mg per day) for 6 months.</td>
</tr>
</tbody>
</table>

For all indications: Doses should not exceed limits in the FDA-approved prescribing information.

aHUS: Atypical hemolytic uremic syndrome; ANCA-AV: ANCA-associated vasculitis; MG: Myasthenia gravis; NMOSD: Neuromyelitis Optica Spectrum Disorder; PNH: Paroxysmal nocturnal hemoglobinuria; n/a: not applicable.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
2. **Continued Authorization:** Up the dose and duration listed below in Table 2:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Soliris (eculizumab)</th>
<th>Ultomiris (ravulizumab-cwvz)</th>
<th>Empaveli (pegcetacoplan)</th>
<th>Tavneos (avacopan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNH</td>
<td><strong>PNH (stable):</strong> Up to twelve infusions in a 24-week period, based on maintenance dosing every 2 weeks. <strong>PNH with breakthrough hemolysis on every 2-week Soliris:</strong> • Up to fourteen infusions in a 24-week period, based on a max dose of 900 mg every 12 days <strong>OR</strong> • Up to thirteen infusions in a 24-week period, based a max dose of 1200 mg every 14 days.</td>
<td>Up to three infusions in a 24-week period, based on maintenance dosing every 8 weeks.</td>
<td><strong>PNH (stable):</strong> Up to 48 (1080 mg) vials in a 24-week period, based on twice weekly dosing. <strong>PNH with breakthrough hemolysis [LDH &gt; 2x ULN, on twice weekly Empaveli]:</strong> Up to ten (1080 mg) vials per 30 days over a 24-week period.</td>
<td>n/a</td>
</tr>
<tr>
<td>aHUS</td>
<td>Pediatric Patients (&lt;10 kg): Up to eight infusions in a 24-week period, based on maintenance dosing every 3 weeks. Adults and Pediatrics (≥10 kg): Up to twelve infusions in a 24-week period, based on maintenance dosing every 2 weeks.</td>
<td>Pediatric Patients (&lt;20 kg): Up to seven infusions in a 24-week period, based on maintenance dosing every 4 weeks. Adults and Pediatrics (≥20 kg): Up to three infusions in a 24-week period, based on maintenance every 8 weeks.</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>MG</td>
<td>Up to twelve infusions in a 24-week period, based on maintenance dosing every 2 weeks.</td>
<td>Up to three infusions in a 24-week period, based on maintenance dosing every 8 weeks.</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>NMOSD</td>
<td>Up to twenty-four infusions in a 48-week period, based on maintenance dosing every 2 weeks.</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Table 2. Continued Authorization

<table>
<thead>
<tr>
<th>Indication</th>
<th>Soliris (eculizumab)</th>
<th>Ultomiris (ravulizumab-cwvz)</th>
<th>Empaveli (pegcetacoplan)</th>
<th>Tavneos (avacopan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCA-AV</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Up to 3 tablets twice daily (not to exceed 60mg per day) for 12 months.</td>
</tr>
</tbody>
</table>

For all indications: Doses should not exceed limits in the FDA-approved prescribing information.

aHUS: Atypical hemolytic uremic syndrome; ANCA-AV: ANCA-associated vasculitis; MG: myasthenia gravis; NMOSD: Neuromyelitis Optica Spectrum Disorder; PNH: Paroxysmal nocturnal hemoglobinuria; n/a: not applicable.

3. Use of doses in excess of those listed above (in Tables 1 and 2) are considered not medically necessary.

D. Authorization shall be reviewed as follows (per the authorization time frames, as specified in Tables 1 and 2) to confirm that current medical necessity criteria are met and that the medication is effective.

1. For all indications: Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met and that the medication is providing clinical benefit, including disease stability or improvement must be provided, relative to baseline symptoms.

2. In addition, the following diagnostic-specific clinical documentation must be provided:

   a. For MG: A standard disease scoring tool must be included, such as the total myasthenia gravis activities of daily living (MG-ADL) score, total quantitative myasthenia gravis (QMG) score, and/or myasthenia gravis composite (MGC) scale.

   b. For NMOSD: There must be a reduction of clinical relapse OR provider attestation has been received that patient is continuing to have clinical benefit (stability or improvement) and continued therapy is medically necessary.

IV. Empaveli (pegcetacoplan), Soliris (eculizumab), Tavneos (avacopan), and Ultomiris (ravulizumab-cwvz) are considered investigational when used for all other conditions, including but not limited to:

   A. Amyotrophic lateral sclerosis (ALS).
   B. Delayed hemolytic transfusion reaction in sickle cell disease.
   C. Deposit disease/C3 glomerulonephritis.
   D. Hemolytic cold agglutinin disease.
E. Ocular myasthenia gravis.
F. Myasthenia gravis with MUSK antibodies or antibodies other than anti-ACh-R.
G. Non-exudative (dry) macular degeneration.
H. Preeclampsia with hemolysis, elevated liver enzymes and low platelets (HELLP) syndrome.
I. Prevention of delayed graft rejection.
J. Shiga toxin E. coli-related hemolytic uremic syndrome (STEC-HUS) Systemic lupus erythematosus.
K. Thrombotic thrombocytopenic purpura (TTP).
L. Use of Ultomiris (ravulizumab-cwvz) for indications other than those listed in the coverage criteria above (such as NMOSD).
M. For NMOSD: Use of Soliris (eculizumab) in combination with other targeted therapies for NMOSD, including but not limited to another complement inhibitor (such as Ultomiris [ravulizumab-cwvz], anti-CD20 therapy [rituximab product], anti-CD19 therapy [Uplizna [inebilizumab]], or anti-IL6 therapy [Actemra [tocilizumab]], Enspryng [satralizumab]).
N. For PNH: Use of multiple complement inhibitors (Empaveli [pegcetacoplan], Soliris [eculizumab], Ultomiris [ravulizumab-cwvz]) in combination.
O. For gMG: Use in combination with other targeted therapies for MG, such as Vyvgart (efgartigimod).
P. Eosinophilic granulomatosis with polyangiitis (EPGA, formerly known as Churg-Strauss Syndrome).
Q. Hidradenitis Suppurativa.
R. Use of Tavneos (avacopan) for aHUS.
S. Use of Tavneos (avacopan) for non-severe ANCA-associated vasculitis.

Position Statement
- Complement inhibitors Empaveli (pegcetacoplan), Soliris (eculizumab), and Ultomiris (ravulizumab-cwvz) are monoclonal antibodies that bind to complement proteins and inhibit activation of the complement pathway. Empaveli (pegcetacoplan) binds to C3 whereas Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) bind to C5.
- Tavneos (avacopan) is an orally administered complement 5a (C5a) receptor antagonist that inhibits the C5a-mediated neutrophil activation and migration pathway.
- The intent of the policy is to allow for coverage of complement inhibitors for the specific diagnoses for which they have been studied (as outlined in the coverage criteria), when managed by a specialist, limit to more severe disease and encourage the use of lower cost therapies (when appropriate), and limit coverage to doses studied and shown to be safe and effective in clinical trials.
* Where there is lack of proven additional benefit and/or lack of demonstrated health outcomes relative to alternative therapies, use of complement inhibitors...
alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

* It is important to note that a medication being FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Tavneos (avacopan) is FDA approved for adjunctive use in severe active anti-neutrophil cytoplasmic autoantibody (ANCA)-associated vasculitis, including granulomatosis with polyangiitis (GPA) and microscopic polyangiitis (MPA) in combination with standard therapy. However, the health plan considers use in newly diagnosed patients to be non-coverable as this regimen has not adequately been demonstrated to provide any superior benefit versus the lower-cost standard of care treatment options.

- Ultomiris (ravulizumab-cwvz) is a complement inhibitor that is a derivative of Soliris (eculizumab) with a more convenient, extended dosing regimen. It is coverable only for the indications for which it has been studied and the dose is known.

Paroxysmal nocturnal hemoglobinuria (PNH) summary

- PNH is a rare and life-threatening blood disorder, characterized by a reduced (type II) or deficient (type III) glycosylphosphatidylinositol (GPI)-linked proteins from the surface of red blood cells. The GPI-linked protein CD59 blocks the formation of the terminal complement complex, preventing cell lysis. In the absence of CD59, red blood cells are susceptible to complement-mediated lysis leading to anemia, hemoglobinuria, and other complications. [1][2]

- There are few treatment options for patients with PNH.
  * Active monitoring of the patient is appropriate for those with mild disease; however, most will require palliative therapy. Treatment is not standard, as the approach to treatment is specific to the manifestations of each patient’s disease. Blood transfusions, anticoagulation, and supplementation with folic acid or iron may be required. [3]
  * Allogeneic hematopoietic cell transplantation (HCT) is the only curative therapy for PNH, and is typically reserved for only the most severe patients due to barriers such as high rates of morbidity and mortality, and lack of suitable donors. [4]
  * FDA-approved therapies for PNH are limited but may include Empaveli (pegcetacoplan), Soliris (eculizumab), and Ultomiris (ravulizumab-cwvz). These treatments are not curative, so patients are treated indefinitely. [3]

- According to the American Society of Hematology (ASH) guidelines, complement inhibitor therapy should be considered in patients with significant symptoms from hemolysis that are not adequately managed with transfusion. Additionally, all patients included in clinical trials received transfusions prior to enrollment, and there is no evidence to support use in patients who are not transfusion-dependent. [5]

- Thrombosis is a common manifestation of PNH and the leading cause of mortality in this population. Due to the severity of the condition, lack of treatment options, and long-term data that suggests efficacy in preventing thrombotic events, complement inhibitor therapy is appropriate for secondary prevention in patients who have experienced a
cardiovascular event due to thrombosis, regardless of transfusion history. For patients with underlying bone marrow failure from aplastic anemia, therapy should target the underlying bone marrow failure, as these patients are less likely to experience benefit from complement inhibitor therapy. [3]
- Treatment with complement inhibitors may be considered effective if there is a decrease in the number of transfusions or disabling symptoms, stabilization of hemoglobin levels, a reduction in thrombotic events, and/or an improvement in quality of life.
- Clinical outcome metrics, like overall survival, have not been evaluated in controlled, clinical trials for complement inhibitor therapy. Large, high quality clinical trials should be conducted to provide more information about the efficacy and safety of complement inhibitors in PNH. [6]
- Empaveli (pegcetacoplan), Soliris (eculizumab), and Ultomiris (ravulizumab-cwvz) may be covered for PNH at the doses proven to be safe and effective in clinical trials. For breakthrough hemolysis with PNH, Soliris (eculizumab) can be dosed more frequently (at 900 mg every 12 days) or at a higher dose (1200 mg every 14 days). For breakthrough hemolysis with PNH when LDH exceed two times the upper limit of normal (ULN), Empaveli (pegcetacoplan) can be dosed at 1080 mg every three days.

Atypical hemolytic uremic syndrome (aHUS) summary
- Hemolytic uremic syndrome (HUS) is a condition caused by the premature destruction of red blood cells and is characterized by microangiopathic hemolytic anemia, thrombocytopenia, and acute kidney injury (>95% of patients). [7] Acute presentation may also include neurological findings (including seizures), gastrointestinal symptoms, and cardiovascular involvement (including hypertensive emergency and acute coronary events. Chronic kidney disease (CKD) is the most common long-term sequelae, including the need for dialysis. [8]
  * The most common cause of HUS is infection, with most cases in the United States being associated with Shiga toxin-producing E. coli. There are no randomized, controlled trials that show complement inhibitors are safe or effective in the treatment of infectious-HUS.
  * Non-infectious HUS, known as atypical hemolytic uremic syndrome (aHUS), typically results from complement abnormalities. However, aHUS is a diagnosis of EXCLUSION, meaning the diagnosis of aHUS is made by excluding other primary thrombotic microangiopathy (TMA) syndromes, such as TTP or infectious HUS.
  * As a complement-related TMA, aHUS is also referred to as complement-related HUS. [4 7 9]
- Thrombotic thrombocytopenic purpura (TTP) is group of syndromes in which patients usually present with thrombocytopenia and microangiopathic hemolytic anemia. Despite similarities in clinical features, the underlying mechanisms of aHUS and TTP differ, altering the manner in which patients respond to different therapies.
- TTP results from mutations in the gene encoding a disintegrin and metalloprotease with thrombospondin type 1 motif, 13 (ADAMTS13). Patients who are severely ADAMTS13
deficient, defined as ADAMTS13 activity <10%, have a confirmed diagnosis of TTP and may not respond to complement-inhibitor therapy.
* There are no randomized, controlled trials that show complement inhibitors are safe or effective in the treatment of TTP.\[9,10\]
- Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) are FDA-approved for complement-mediated HUS (aHUS). There are no objective biomarkers to confirm a diagnosis of aHUS; however, TTP-HUS can be ruled out if severe ADAMTS13 deficiency is not present (ADAMTS13 activity ≥ 10%). As complement inhibitors, Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) target the underlying mechanism behind aHUS, binding to the complement protein C5 and prevent the formation of proinflammatory molecules.\[11\] However, complement testing is not universally used, as normal complement levels do not exclude a diagnosis of aHUS.\[9\]
- Prior to the availability of complement inhibitors, the treatment of choice for aHUS was plasma exchange/plasmapheresis (PLEX) or transfusion plus supportive care. Patients undergoing plasma exchanges are prone to complications including fluid-imbalance, catheter-related complications, and anaphylactic reactions. While most patients respond to plasmapheresis, patients remain at risk for chronic kidney injury.\[11,12\]
- Evidence of efficacy of certain complement inhibitors primarily comes from positive open-label, single arm trials, retrospective reviews, and case studies.
- Despite a lack of high-quality evidence, complement inhibitors are an important treatment option for patients with aHUS.\[13\] However, there are still many unknowns about complement inhibitors including evidence of efficacy for meaningful clinical outcomes, such as mortality, comparative efficacy with plasmapheresis, long term safety, and validated strategies for starting and stopping therapy.
- Treatment with certain complement inhibitors may be considered effective if treatment results in a decrease in the signs of thrombotic microangiopathy (TMA), indicated by normalization of platelet counts and lactate dehydrogenase (LDH) levels.
- Currently there is insufficient evidence to establish the safety and efficacy of Tavneos (avacopan), an oral complement antagonist, for aHUS.

Refractory myasthenia gravis (MG) summary
- Myasthenia gravis (MG) is a rare autoimmune disease arising from T cell-dependent immunologic attack of AChR, muscle-specific tyrosine kinase (MuSK), and/or other receptors found on the postsynaptic neuromuscular junction, resulting in striated muscle weakness.
- MG presents with painless, fluctuating, fatigable weakness of specific muscle groups. Initially, patients most frequently present with ocular MG of the eyelids and extraocular muscles, presenting with asymmetric ptosis and diplopia. As weakness extends beyond ocular muscles, the disease progresses into gMG.
- Approximately 10-15% of all MG cases consist of refractory gMG that presents with severe debilitating muscle weakness despite substantial use of long-term corticosteroids or multiple steroid-sparing immunosuppressive agents, resulting in substantial negative effects on activities of daily living and quality of life.
- Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) provide newer treatment options for refractory gMG. While the clinical data is promising, there are several limitations in...
the body of evidence. [14] Use should be limited to patients who have failed other options, as detailed in the coverage criteria.

- Standard therapies recommended by treatment guidelines for management of MG include acetylcholinesterase (ACh) inhibitors (pyridostigmine), corticosteroids, various DMARDs for immunosuppressant therapy (IST), intravenous immunoglobulin (IVIG), plasmapheresis/plasma exchange (PLEX), and thymectomy. [15-20]

  * Acetylcholinesterase inhibitors are used for temporary symptomatic relief of MG symptoms, by slowing the breakdown of acetylcholine at the neuromuscular junction. However, their use is limited as an adjunct therapy to immunotherapy in those with residual or refractory MG or for treatment of ocular and mild gMG in those who cannot receive immune suppression. [17]

  * Corticosteroids are the most widely used immune modulator for MG. Corticosteroids are effective in ocular MG and in patients with gMG with unsatisfactory responses to acetylcholinesterase inhibitors; however, they are associated with significant dose-dependent adverse events and should not be used for extended durations. [18]

  * Azathioprine, cyclosporine, and mycophenolate mofetil are standard on-steroid immunosuppressant therapy (IST) and act as steroid-sparing agents. Other options include cyclophosphamide, methotrexate, and tacrolimus. [15 16 19]

  - Onset of effect is slow (up to 9-12 months). Once goals are met, steroids may be slowly tapered; however, many patients require long-term low-dose steroids for symptom control.

  - Guidelines recommend dose adjustments no more frequently than every 3 to 6 months.

  - Once treatment effective is achieved and doses are maintained for six months to two years of therapy, IST doses should be tapered to the lowest effect dose.

  * Plasma exchange/plasmapheresis (PLEX) and IVIG provides short-term symptomatic relief during exacerbations for surgical preparation or in patients with septicemia through downregulating autoantibodies and/or inducing anti-idiopathic antibodies. However, IVIG may be a maintenance treatment option for patients intolerant to or not responding to an adequate course of non-steroid IST. [20]

  * Patients with thymoma should undergo thymectomy. In non-thymomatous patients, thymectomy is a treatment option to minimize need for immunotherapy (either avoid, dose minimize, or use for refractory MG symptoms). However, thymectomy may not be medically possible in unstable MG patients. [15 16]

- MG-ADL is a scoring tool used in clinical practice, along with MG composite score, for monitoring progression of MG and response to therapies. [21]

- Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) have not been studied and shown to be safe or effective in patients with other antibodies, including MuSK antibodies, antibodies to the agrin receptor low-density lipoprotein receptor–related protein 4 (LRP4), or any other antibodies. In addition, neither have not been studied in patients
with ocular MG (without generalized MG symptoms) or those in myasthenic crisis (MGFA Class V).

- Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) may be covered for refractory MG at the doses proven to be safe and effective in clinical trials, as detailed in the coverage criteria.\[22\]

**Neuromyelitis optica spectrum disorder (NMOSD) summary\[23-26\]**

- NMOSD, also known as Devic disease or neuromyelitis optica (NMO), is a chronic demyelinating disease of the central nervous system dominated by inflammation of the optic nerve and spinal cord and may often be misdiagnosed as multiple sclerosis (MS).
- Stepwise deterioration due to disease relapse/attack causes an accumulation of disability. Hallmark features of NMOSD include acute nerve inflammation that led to severe visual loss, limb weakness, sensory loss, pain, paralysis, bladder dysfunction, and intractable nausea/vomiting and hiccups.
- Patients with NMOSD are treated for acute episodes/relapse with steroids. Plasma exchange (PLEX) is used acutely for incomplete response to steroids.
- Immunosuppressive therapy (IST; corticosteroids, azathioprine, mycophenolate mofetil, or rituximab) is therapy to reduce the frequency of relapse (maintenance therapy).
- Not all patients with NMOSD test positive for AQP4-IgG. However, all patients in clinical trials of Soliris (eculizumab) for NMOSD were AQP4-IgG positive. Therefore, the safety and efficacy of Soliris (eculizumab) in AQP4-IgG negative patients is unknown.
- Soliris (eculizumab) has not been directly compared to any other IST for NMOSD. However, use of rituximab for NMOSD is supported by clinical evidence for reducing relapse rate [including a single randomized controlled trial (RCT)] \[22\] is recommended by guidelines, and has years of experience in clinical practice.\[23 26-32\] Therefore Soliris (eculizumab) for NMOSD is coverable only when rituximab is ineffective or not a treatment option.
- There is no evidence that Soliris (eculizumab) is more effective than Enspryng (satralizumab) and Uplizna (inebilizumab). Among the FDA-approved agents for NMOSD, Enspryng (satralizumab) and Uplizna (inebilizumab) are the best value for members, as lower cost options with lower administration burden.
- The evidence for Soliris (eculizumab) in NMOSD is limited to a single phase 3 trial. Although Soliris (eculizumab) reduced the frequency of NMOSD relapse compared to placebo, its effect on quality of life (QoL) and disability are unknown.
- The safety and efficacy of Soliris (eculizumab) in combination with other targeted therapies for NMOSD, such as rituximab, Enspryng (satralizumab) and Uplizna (inebilizumab), have not been studied and have not been established.
- Ultomiris (ravulizumab-cwvz), another complement inhibitor, is not coverable for NMOSD. Despite being a derivative of Soliris (eculizumab), there is insufficient evidence at this time to establish the safety or efficacy of Ultomiris (ravulizumab-cwvz) for NMOSD. In addition, the dose of Ultomiris (ravulizumab-cwvz) for NMOSD is unknown.

**Antineutrophil cytoplasmic antibody-associated vasculitis (ANCA-VA) (MPA or GPA)\[33-37\]**

- ANCA-VA is a rare multisystem autoimmune disease caused by inflammation and necrosis of the small and medium arteries. ANCA-VA includes microscopic polyangiitis (MPA), granulomatosis with polyangiitis (GPA, also known as Wegener’s...
granulomatosis), and eosinophilic granulomatosis with polyangiitis (EPGA, formerly known as Churg-Strauss syndrome). However, EPGA is clinically and pathologically different from GPA and MPA, and patients with EGPA were excluded from clinical trials. Therefore, the safety and efficacy of Tavneos (avacopan) in EGPA is unknown and its use for EGPA is considered investigational.

- ANCA-AV patients usually present with nonspecific symptoms (fever, malaise, myalgias, and arthralgias) and are commonly misdiagnosed, so testing for ANCA antibody is key and tissue biopsy is confirmatory.

- The 2021 American College of Rheumatology (ACR) ANCA-AV guidelines recommend treatment based on severity of disease and organ involvement, with the goals of inducing remission and maintaining remission, as follows:
  * Non-severe active disease (without organ involvement or non-life-threatening):
    • First-line options for induction of remission as well as maintenance of remission include methotrexate or azathioprine in combination with glucocorticoids. Mycophenolate mofetil in combination with glucocorticoids is a second-line option if methotrexate or azathioprine is contraindicated or not tolerated.
  * Severe active disease (with organ involvement or life-threatening manifestations):
    • First-line treatment for induction of remission is rituximab in combination with low dose glucocorticoids. Cyclophosphamide (IV or oral) in combo with low dose glucocorticoids is another option for induction if previous treatment with rituximab has failed.
    • Once remission has been induced, rituximab is used as first-line treatment for the maintenance of remission. Use of oral immunosuppressants such as methotrexate, azathioprine, and mycophenolate mofetil are used as maintenance options if rituximab is not tolerated or contraindicated.
  * Tavneos (avacopan) is not included in the guidelines, which were released prior to FDA approval of Tavneos (avacopan).

- Tavneos (avacopan) received FDA approval based on a single trial as adjunctive therapy for severe ANCA-AV (MPA or GPA), in combination with standard therapy, including corticosteroids.

- Currently there is insufficient evidence to establish add-on therapy with Tavneos (avacopan) is more effective than the lower cost standard of care immunosuppressant treatment options for patients with severe active ANCA-associated vasculitis. Therefore, the use of Tavneos (avacopan) for patients diagnosed with severe ANCA-associated vasculitis will only be covered as add on therapy to the standard of care in patients who have previous failed induction therapy with standard of care options (rituximab or cyclophosphamide with glucocorticoids) or who have relapsed since previously achieving remission in the past 12 months.
Clinical Efficacy

Paroxysmal nocturnal hemoglobinuria (PNH)

- The evidence for Soliris (eculizumab) in PNH is limited. One small, phase 3 trial showed that Soliris (eculizumab) stabilizes hemoglobin and reduces the need for transfusions for patients with PNH compared to placebo. [2]
  * The TRIUMPH study is a 26 week, double-blind, randomized, placebo-controlled, multicenter trial that evaluates the efficacy and safety of Soliris (eculizumab) in PNH in 87 patients who had at least 4 transfusions during the previous 12 months.
  * The co-primary endpoints were the stabilization of hemoglobin levels, defined as a hemoglobin value that was maintained above the level at which the qualifying transfusion was administered, in the absence of transfusions during the 26-week period, and the number of units of packed red cells transfused during that period.
  * At the end of the treatment period, 49% of patients treated with Soliris (eculizumab) had stabilized hemoglobin in the absence of transfusions, which was not accomplished by any patients receiving placebo (p<0.001).
  * Patients treated with Soliris (eculizumab) received fewer units of packed red blood cells compared to patients in the placebo group (3.0±0.7 and 11.0±0.8 units, respectively). Transfusion independence was achieved in 51% of patients in the Soliris (eculizumab) group and was not achieved by any patients receiving placebo (p<0.001).

- Conclusions from the TRIUMPH study were supported by the SHEPARD study, a phase 3, single-arm, open-label, 52-week study in patients with PNH who had at least one transfusion in the past two years. [38]
  * Patients experienced an increase in hemoglobin level and a reduction in transfusion requirements compared to baseline; however, there was no placebo arm to confirm the benefit of Soliris (eculizumab) in this broadened population.
  * Eighty-nine of 97 patients maintained complete inhibition of serum hemolytic activity with every 14-day dosing throughout the duration of the treatment period. Eight patients experienced breakthrough hemolysis during the last 1 or 2 days of the 14-day dosing interval. Reduced hemolysis was achieved in each of these patients for whom the dosing interval was adjusted, per protocol, to 12 days (n = 6).

- A long-term study, up to three years, was completed in patients who participated in one of the phase 3 trials or a phase 2 pilot study. Patients included in the analysis experienced a sustained reduction in hemolysis, measured by lactate dehydrogenase levels, and a reduction in thromboembolic events. [39]

- Evidence from large, high-quality clinical trials is needed. There are no controlled clinical trials that evaluate the effect of Soliris (eculizumab) on overall survival, transformation to myelodysplastic syndrome or acute myelogenous leukemia, or the incidence of aplastic anemia. [6]

- Expert consensus indicates that Soliris (eculizumab) decreases hemolysis, the resultant symptoms, and transfusion requirements. Soliris (eculizumab) should be considered in
patients with significant symptoms from hemolysis that are not adequately managed with transfusion (Grade 1A recommendation). [5]

- The evidence for Ultomiris (ravulizumab-cwvz) is based on two trials that compared it to Soliris (eculizumab). The trials demonstrated that Ultomiris (ravulizumab-cwvz) is not worse than Soliris (eculizumab) for the treatment of PNH. [7 40-42]
  * Both trials demonstrated Ultomiris (ravulizumab-cwvz) was noninferior to Soliris (eculizumab) for measurements of hemolysis and transfusion avoidance.
  * Ultomiris (ravulizumab-cwvz) carries the same safety concerns as Soliris (eculizumab) including a REMS program and safety warning about meningitis.
  * There are ongoing clinical trials for Ultomiris (ravulizumab-cwvz) in conditions that have evidence for efficacy for Soliris (eculizumab).

- The evidence for pegcetacoplan in PNH is primarily based on one randomized control trial (PEGSUS) in patients who were established on eculizumab and one interim phase 3 trial (PRINCE) in patients who were not on complement inhibitors at baseline.
  - The PEGASUS [43] study was a phase 3, randomized, open-label, 16-week (randomized control period), active-control trial in 80 adults with PNH whose hemoglobin levels remained low despite treatment with eculizumab.
  * Patients in the pegcetacoplan arm demonstrated a superiority in change in hemoglobin level versus eculizumab from baseline to week 16 during the RCP and noninferiority for transfusion avoidance. The benefits were sustained during the 32-week open label period. Two out of 41 patients in the pegcetacoplan group required dose escalation to 1,080 mg every 3 days.
  - The PRINCE [44] study was a randomized, open-label, 26-week, controlled phase 3 trial in 53 adults with PNH who were not on complement inhibitors at baseline. The trial compared pegcetacoplan with standard of care (excluding complement inhibitors).
    * Pegcetacoplan demonstrated superiority in the co-primary endpoints of hemoglobin stabilization and LDH reduction compared to standard of care. Hemoglobin stabilization was defined as less than 1g/dL decrease in hemoglobin levels in the absence of blood transfusions.
    * In addition, more patients on pegcetacoplan were transfusion-free compared to standard of care. 91% of patients on pegcetacoplan were transfusion free compared to 22% on standard of care.

**Atypical hemolytic uremic syndrome (aHUS)**

- The best available evidence for Soliris (eculizumab) in aHUS is limited to four phase 2, open-label, non-randomized, prospective, single-arm studies in populations. Two of the studies are not published at this time.
  * One study (n=17) in adolescent and adult patients who were resistant to plasma therapy and had impaired kidney function found a mean increase in platelet counts from baseline after treatment with Soliris (eculizumab) for a median length of 64 weeks. [13 45]
  * One study (n=20) in adolescent and adult patients with chronic renal impairment and no evidence of thrombotic microangiopathy found that 80% of patients treated with Soliris (eculizumab) achieved a thrombotic microangiopathy activity event-free status (defined as ≤ 25% decrease in platelet count and no plasma
therapy, or new dialysis for ≥ 12 consecutive weeks).\[13,45\]

* Two unpublished studies measured thrombotic microangiopathic (TMA) response in pediatrics (n=22) and adults (n=41), defined as hematological normalization and ≥ 25% improvement in serum creatinine from baseline. After a minimum of 26 weeks of treatment with Soliris (eculizumab), 64% of pediatric patients and 56% of adult patients achieved the primary endpoint.\[13\]

* Reduction in mortality and other clinically meaningful endpoints have not yet been studied in a controlled clinical trial.

- The evidence for Ultomiris (ravulizumab-cwvz) for aHUS limited to two open-label, non-randomized, prospective, single-arm trials (one in adults, n=56; one in pediatric patients, n=16).\[7\]

* Both trials assessed Complete TMA Response during the 26-week trial, defined as normalization of hematological parameters (platelet count and LDH) and ≥ 25% improvement in serum creatinine from baseline.

* After a minimum of 26 weeks of treatment with Ultomiris (ravulizumab-cwvz), 71% of pediatric patients and 54% of adult patients achieved the primary endpoint.

* The efficacy results are overall similar to trials of Soliris (eculizumab) for aHUS.

- Additional published studies that support the use of Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) in aHUS are limited to case studies and retrospective reviews.

- All studies of complement inhibitors in aHUS have significant limitations including an absence of control groups, open-label treatment, ambiguous recruitment techniques, and use of surrogate markers as primary endpoints. As such, the true benefit of Soliris (eculizumab) in aHUS is unclear and results should be interpreted with caution.

- There are no nationally published guidelines for the treatment of aHUS. National Health Service England has commissioned Soliris (eculizumab) for patients newly diagnosed with aHUS and for existing patients who are on dialysis and are suitable for a kidney transplant until a guideline is developed.\[13\]

**Refractory myasthenia gravis (MG)**

- The evidence for complement inhibitors in MG is limited. In both phase 3 trials of Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz), the active treatment arm improved functional scores in patients with refractory generalized MG compared to placebo (REGAIN\[14\] for Soliris [eculizumab] and CHAMPION-MG\[46\] for Ultomiris [ravulizumab-cwvz]), a surrogate for MG symptoms.

* Patients in who were included in the efficacy analyses of both REGAIN and CHAMPION-MG had a MG severity classification of MGFA Class II to IV, MG-ADL score 6 or higher, and positive serologic test for anti-AChR antibodies. In addition, patients in REGAIN failed ≥2 ISTs or ≥1 IST and required chronic plasma exchange or IVIG for over 1 year. 98% of patients were on ≥2 ISTs and 52% of patients were on ≥3 ISTs for an average length of 2.5 to 7.3 years prior to enrollment. Patients in CHAMPION-MG were not required to have prior therapies.

* In REGAIN, the primary endpoint was the mean difference of scores from baseline to week 26 of MG-ADL measured by worst-rank ANCOVA, which
showed Soliris (eculizumab) was not significantly better than placebo (p=0.0698). FDA-approval was based on non-primary sensitivity analysis outcomes with statistical significance but the magnitude of mean total score differences were insufficient to represent clinically meaningful improvement. However, it should be noted that several subjects left the trial for reasons unrelated to their MG, which affected the statistical analysis of the worst-rank ANCOVA.

* The primary endpoint of change from baseline in MG-ADL score to week 26 was met in CHAMPION-MG. Ultomiris (ravulizumab-cwvz) also demonstrated improvements in MG-ADL muscle strength, and quality life, sustained through 60 weeks in an open-label extension.

* Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz) have not been studied in patients with less severe MG, including patients with MFGA Class I or those responding to IST therapy. In addition, there is no evidence for the use in patients in myasthenic crisis (Class V).

Neuromyelitis Optica Spectrum Disorder (NMOSD)[24]

- The evidence for Soliris (eculizumab) in NMOSD is limited. One phase 3, time-to-event trial (n=143) showed that Soliris (eculizumab) reduced the frequency of first adjudicated relapse compared to placebo (PREVENT).

* Patients enrolled in the trial had “highly active” disease defined as two relapses in the past year or three relapses in the past two years, with one of those in the last year; baseline annualized relapse rate was 2, median Expanded Disability Status Scale (EDSS) 4; 76% of patients were on immunosuppressive therapy at baseline and 32% had previous rituximab treatment.

* In PREVENT, the primary endpoint of first adjudicated relapse occurred in 3% of the Soliris (eculizumab) arm versus 43% in the placebo arm, HR 0.06 [95% CI 0.02 to 0.20]. At 144 weeks, 96.5% of patients in the Soliris (eculizumab) group and 45.4% in the placebo group remained relapse-free.

* Key secondary endpoints included change from baseline in functionality and patient-reported health outcomes as measured by EDSS as well as the modified Rankin Scale, Hauser Ambulation Index, and EQ-5D-3L. The first measure, EDSS, did not reach statistical significance. However, the remaining measures trended in favor of the treatment group.

* There is no evidence for the safety or efficacy of Soliris (eculizumab) beyond two years (144 weeks).

Guidelines recommend treatment of acute episodes/relapse and use of maintenance immunosuppressive therapy (IST), to reduce the frequency of relapse. [23 26 28 29 47]

* Treatment of Relapse: Patients are usually treated with 1 g of intravenous (IV) methylprednisolone (IVMP) for 3–5 days. Relapses that do not respond to IV steroids may benefit from five to seven plasma exchange (PLEX) procedures over a 2-week period. Oral prednisone (1 mg/kg) for 1–6 months can be initiated after IVMP or PLEX to ensure a prolonged effect on inflammation until steroid-sparing immunosuppressants take effect.

* Maintenance Therapy: A variety of immunosuppressive therapy (IST) are regarded by many clinicians as first-line therapy based on primarily
observational or single-arm data. The most widely prescribed treatments include corticosteroids, azathioprine, mycophenolate mofetil, and rituximab. The use of azathioprine and mycophenolate mofetil has fallen out of favor due to lack of efficacy. However, if given, they are often prescribed with low doses of corticosteroids. Rituximab has evidence for reduction of relapse rates and disability in NMO, based on one RCT (n=68) and dozens of case series, including in patients who fail oral immunosuppressive treatments. Paradoxical relapses may occur shortly after initiation of rituximab therapy so it is important to allow enough time for the rituximab to become effective. Complete suppression of CD19+B lymphocytes takes one month. 

Antineutrophil cytoplasmic antibody-associated vasculitis (ANCA-AV) (MPA or GPA) 

- The evidence for Tavneos (avacopan) obtaining FDA approval was based on one phase 3 trial. The trial was a double-blind active-controlled RCT (ADVOCATE) concluding that Tavneos (avacopan) was non-inferior to standard of care for induction and maintenance of remission in patients with ANCA-AV (MPA or GPA) (n=331). Given the lack of superior benefit versus the standard of care, and availability of effective lower-cost treatment options, the use of Tavneos (avacopan) will only be coverable in patients with severe active ANCA-AV (GPA or MPA) who have previously failed standard induction therapy or relapsed since achieving remission in the past 12 months.

* Patients enrolled in the trial had either newly diagnosed active severe ANCA-AV (69%) or relapsed active severe ANCA-AV (31%). Active severe ANCA-AV is defined by ACR guidelines as new, persistent, or worsening clinical signs or symptoms attributed to GPA or MPA that has organ or life-threatening manifestations.

* In the trial these patients had to have one major Birmingham Vasculitis Activity Score (BVAS) item, 3 non-major items, or two renal items of hematuria and protein urea. BVAS is the clinical trial standard measure for ANCA-AV remission scoring with score of 0 being complete remission. The average BVAS score in both arms was 16.3, which indicates active severe disease.

* The breakdown of patients with GPA vs MPA in the trial was 55% to 45%, respectively. Patients that had EGPA were excluded from this trial as EPGA is clinically and pathologically different and is therefore excluded from trials involving ANCA-AV.

* Patients were randomized to Tavneos (avacopan) or 20-week steroid taper in addition to investigator-choice standard of care induction therapy with rituximab or cyclophosphamide. Patients in both arms were still allowed to receive additional non-study supplied steroids. In addition, the patients who received oral or IV cyclophosphamide received standard of care maintenance therapy with azathioprine beginning at week 15 till week 52, while the rituximab patients received no standard of care maintenance treatment.
  - 36% of patients in each arm received cyclophosphamide
  - 65% of patients in each arm received rituximab.

* Primary endpoints were remission at week 26 (BVAS of 0) and sustained remission at week 52 (BVAS of 0).
Results of the ADVOCATE trial showed that the Tavneos (avacopan) arm of the trial was non-inferior to standard of care at inducing remission and sustaining remission at week 52. Tavneos (avacopan) only showed superiority when compared to placebo (not standard of care) at week 52. The trial failed to prove superiority and only showed non-inferiority when compared to current standard of care. As a result, the FDA approved labeled indication for Tavneos (avacopan) is for add-on therapy only.

Factors which may impact the accuracy, applicability, and generalizability of the results for this trial include but are not limited to the following:

- During the study, 86% of the Tavneos (avacopan) arm and 90% of the steroid arm received non-study supplied steroids.
- The patients who received azathioprine for standard of care maintenance of remission treatment showed no difference between Tavneos (avacopan) and placebo at week 52.
- Patients’ response to Tavneos (avacopan) based on investigator BVAS scale scoring supported only non-inferiority when compared to placebo at week 52.
- Secondary endpoints of this study included a novel glucocorticoid toxicity index scoring tool (GTI), that was determined by FDA to be not fit for its purpose and of no relevance to the benefit of avacopan in this trial. Other secondary endpoints included change in EGFR, quality of life measures (EQ-5D-5L and SF-36), and improvement of urinary albumin to creatinine ratio, all of which provide no clinical meaningful treatment benefit of Tavneos (avacopan) and were not adjusted for multiplicity.

Sub-group analysis in patients treated with Tavneos (avacopan) who were newly diagnosed (69%) compared to the patients who had relapsed (31%), showed significant difference in the response to Tavneos (avacopan). The newly diagnosed patients response rate of Tavneos (avacopan) compared to the prednisone arm was 66.1% vs 66.7% at week 26 and 60.9% vs 57.9% with neither being significant. Whereas the relapsed patients showed a much higher response rate to Tavneos (avacopan) compared to prednisone of 86.3% vs 78% at week 26 and 76.5% vs 48% at week 52.

- Given the lack of evidence to establish Tavneos (avacopan) is superior to placebo as add-on to current standard of care, and the availability of effective lower-cost treatment options, the use of Tavneos (avacopan) for severe active ANCA-associated vasculitis will only be coverable in patients who have previously failed standard induction therapy or have relapsed since achieving remission in the past 12 months.

Investigational Uses

- Soliris (eculizumab) has been studied in a variety of other conditions. Due to lack of published data, lack of high-quality data, or lack of positive data these conditions are considered investigational. [48-55]
- One Phase 2/3 trial (PROTECT) evaluated Soliris (eculizumab) versus placebo in kidney transplant patients at high risk of delayed graft function (DGF). The trial failed to show...
a statistically significant difference in the incidence of DGF, death, graft loss, or discontinuation at seven days following a transplant (35.9% in Soliris (eculizumab) vs. 41.7% in placebo, \(p = 0.398\)). \(^{[55]}\)

- Ultomiris (ravulizumab-cwvz), another complement inhibitor, is not coverable for other indications, except as listed in the coverage criteria. Despite being a derivative of Soliris (eculizumab), there is insufficient evidence at this time to establish the safety or efficacy of Ultomiris (ravulizumab-cwvz) for other indications, including MG and NMOSD. In addition, the dose of Ultomiris (ravulizumab-cwvz) for other indications is unknown.

- Tavneos (avacopan) has been studied in a variety of other conditions including aHUS and C3 glomerulonephritis. Due to lack of published and positive data, these conditions are considered investigational.\(^{[56 57]}\)

**Safety \(^{[7 50 58]}\)**

- There is a boxed warning for Empaveli (pegcetacoplan), Soliris (eculizumab), and Ultomiris (ravulizumab-cwvz) for life-threatening and fatal meningococcal infections. Patients should be immunized with a meningococcal vaccine at least 2 weeks prior to the first dose of Empaveli (pegcetacoplan), Soliris (eculizumab), or Ultomiris (ravulizumab-cwvz) unless the risks of delaying complement inhibitor therapy outweigh the risks of developing a meningococcal infection.

- There is a Risk Evaluation and Mitigation Strategy (REMS) program in place for Empaveli (pegcetacoplan), Soliris (eculizumab), and Ultomiris (ravulizumab-cwvz). The purpose of the REMS program is to mitigate the occurrence and morbidity associated with meningococcal infections. Providers must be certified by the REMS program to prescribe complement inhibitors.

- There was one death related to Soliris (eculizumab) in clinical trials. The patient was part of the PREVENT trial for NMOSD and died due to pulmonary empyema.

- In trials, there was a higher incidence of hepatotoxicity, hypersensitivity, and hepatitis B virus (HBV) reactivation with use of Tavneos (avacopan) compared to standard of care. Patients should be screened prior to initiation of treatment as well as monitored throughout treatment.

**Administration and Dosing \(^{[7 34 50 59]}\)**

- The recommended dose of Soliris (eculizumab) for the treatment of PNH is:
  * 600 mg weekly for the first four weeks, followed by
  * 900 mg for the fifth dose 1 week later, then
  * 900 mg every 2 weeks thereafter

- For breakthrough hemolysis in PNH, Soliris (eculizumab) dosing may be adjusted to 900 mg every 12 days instead of every 14 days. In the pivotal trial for the FDA labeled dose, 900 mg every 14 days, plus or minus 2 days, was used, such that 900 mg every 12 days is considered coverable per label, when there is breakthrough hemolysis. There is also limited data that doses of 1200 mg every 14 days have been used for breakthrough. \(^{[60 61]}\)

- The recommended dose of Soliris (eculizumab) for the treatment of aHUS, MG, and NMOSD in adults is:
  * 900 mg weekly for the first 4 weeks, followed by...
* 1200 mg for the fifth dose 1 week later, then
* 1200 mg every 2 weeks there after

- Soliris (eculizumab) dosing for patients less than 18 years of age with aHUS is weight-based, with a maintenance dose ranging from 300 mg every 3 weeks to 1,200 mg every 2 weeks.
- In patients with aHUS or MG receiving concomitant plasmapheresis/plasma exchange or fresh frozen plasma infusion, supplemental dosing, and frequency of Soliris (eculizumab) varies. There is no experience with supplemental dosing for Ultomiris (ravulizumab-cwvz) with PLEX and supplemental doses are not coverable.
- No additional benefit is observed above the recommended dose.
- The recommended dose of Ultomiris (ravulizumab-cwvz) for the treatment of PNH and aHUS is one weight-based loading dose followed by maintenance dosing in two weeks, then every eight weeks: [7]

<table>
<thead>
<tr>
<th>Body Weight Range (kg)</th>
<th>Loading Dose</th>
<th>Maintenance Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 40 to &lt; 60</td>
<td>2,400 mg</td>
<td>3,000 mg</td>
</tr>
<tr>
<td>&gt; 60 to &lt; 100</td>
<td>2,700 mg</td>
<td>3,300 mg</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>3,000 mg</td>
<td>3,600 mg</td>
</tr>
</tbody>
</table>

*a See FDA labeling for pediatric dosing (wt <40 kg)

- Empaveli (pegcetacoplan) dosing for adults with PNH is 1080 mg subcutaneous infusion twice weekly.
  * A 4-week overlap is required for patients switching from Soliris (eculizumab). Patients established on Ultomiris (ravulizumab-cwvz) are recommended to begin Empaveli (pegcetacoplan) no more than 4 weeks after the last dose of Ultomiris (ravulizumab-cwvz).
  * For lactate dehydrogenase (LDH) levels greater than 2 × the upper limit of normal (ULN), dose may need to be adjusted to 1,080 mg every three days based on limited data. [59]

- Tavneos (avacopan) dosing for adults with ANCA-associated vasculitis is 30mg orally twice daily

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Cross References

| Site of Care Review, Medication Policy Manual, Policy No. dru408
| Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620
| Enspryng, satralizumab, Medication Policy Manual, Policy No. dru656
| Uplizna, inebilizumab, Medication Policy Manual, Policy No. dru657
| Vyvgart, efgartigimod, Medication Policy Manual, Policy No. dru696

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<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J1300</td>
<td>Injection, eculizumab (Soliris), 10 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J1303</td>
<td>Injection, ravulizumab-cwz (Ultomiris), 10 mg</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>D59.3</td>
<td>Hemolytic-uremic syndrome</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>D59.5</td>
<td>Paroxysmal nocturnal hemoglobinuria</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>D59.6</td>
<td>Hemoglobinuria due to hemolysis from other external causes</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>D59.8</td>
<td>Other acquired hemolytic anemias</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>G36.0</td>
<td>Neuromyelitis Optica [Devic]</td>
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<tr>
<td>ICD-10-CM</td>
<td>G70.0</td>
<td>Myasthenia gravis</td>
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<tr>
<td>ICD-10-CM</td>
<td>M31.3</td>
<td>Wegener’s granulomatosis</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>M31.7</td>
<td>Microscopic polyangiitis</td>
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These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
# Appendix 1: Medications that may unmask or worsen myasthenia gravis *

<table>
<thead>
<tr>
<th>Medication Category</th>
<th>Medications</th>
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<tbody>
<tr>
<td>Aminoglycosides</td>
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<tr>
<td>Amantadine</td>
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<tr>
<td>Anti-arrhythmics (procainamide, propafenone, quinidine)</td>
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<tr>
<td>Antiepileptics (various, carbamazepine, gabapentin, phenytoin, etc.)</td>
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<tr>
<td>Cancer immunotherapies, including but not limited to:</td>
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<tr>
<td>- Anti-programmed death receptor-1 monoclonal antibodies (PD1s, PDL-1s; Opdivo [nivolumab], Keytruda [pembrolizumab], etc.)</td>
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<tr>
<td>- Yervoy (ipilimumab)</td>
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<tr>
<td>- Provenge (sipuleucel-T)</td>
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<tr>
<td>Antihistamines (diphenhydramine)</td>
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<tr>
<td>Beta-blockers</td>
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<tr>
<td>Calcium channel blockers (felodipine, verapamil)</td>
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<tr>
<td>Colchicine</td>
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<tr>
<td>Erythromycins (azithromycin, clarithromycin, clindamycin)</td>
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<tr>
<td>Plaquenil (hydroxychloroquine)</td>
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<tr>
<td>Interferons (various)</td>
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<tr>
<td>Lithium</td>
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<tr>
<td>Magnesium</td>
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<tr>
<td>Neuromuscular blockers (succinylcholine, etc.)</td>
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<tr>
<td>Opioids</td>
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<tr>
<td>Phenothiazines (haloperidol)</td>
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<tr>
<td>Proton pump inhibitors (lansoprazole, omeprazole)</td>
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<tr>
<td>Quinine</td>
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<tr>
<td>Quinolones (ciprofloxacin, levofloxacin, etc.)</td>
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<tr>
<td>Statins (pravastatin, etc.)</td>
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</tbody>
</table>

*Including, but not limited to this list. Medication lists will be reviewed in full versus compendium (such as DrugDex).
References


26. Glisson CC. Neuromyelitis optica spectrum disorders (literature review current through March 2022). In: UptoDate, Gonzalez-Scarano F, Dashe JF (Eds), UptoDate, Waltham, MA, 2022.


34. Tavneos™ (avacopan) [package insert]. Cincinnati, OH: ChemoCentryx; October 2021


<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>Added coverage criteria for Ultomiris (ravulizumab-cwvz) for use in generalized myasthenia gravis (gMG).</td>
</tr>
</tbody>
</table>
| 3/18/2022     | - Added the newly FDA-approved Tavneos (avacopan) to policy. Limits coverage to patients with severe active ANCA-AV as adjunctive therapy with standard of care including glucocorticoids, when managed by a specialist and previous standard of care therapies (rituximab, cyclophosphamide, glucocorticoids, MTX, AZA, and MMF) were ineffective at inducing or maintaining remission.  
- Updated MG-ADL score to greater than or equal to 5, to match Vyvgart (efgartigimod) policy.  
- Added combination use with Vyvgart (efgartigimod) to investigational uses. |
| 10/15/2021    | - Added the newly FDA-approved Empaveli (pegcetacoplan) to policy. Coverage for paroxysmal nocturnal hemoglobinuria (PNH) will align with current coverage criteria for Soliris (eculizumab) and Ultomiris (ravulizumab-cwvz). |
| 7/16/2021     | - Continuation of therapy (COT) language updated to align with Enspryng (satralizumab) and Uplizna (inebilizumab).  
- Added quantity limit (QL) for Soliris (eculizumab) when used for PNH with breakthrough hemolysis.  
- Clarified use of combination therapy for NMOSD as “Investigational” (removed from medical necessity criteria). No changes to intent of coverage criteria with this annual update. |
| 1/20/2021     | - Updated COT language to new format.  
- Reformatted quantity limits for operational ease. No change to intent. |
| 10/28/2020    | - Added additional step with either Enspryng (satralizumab) or Uplizna (inebilizumab) for Soliris (eculizumab) in NMOSD.  
- Updated Soliris (eculizumab) NMOSD criteria to limit concomitant use with rituximab, Enspryng (satralizumab) or Uplizna (inebilizumab). |
| 6/15/2020     | Continuation of therapy (COT) language added. Removed references to brand Rituxan to account for preferred/non-preferred changes in biosimilars policy (dru620). |
| 10/23/2019    | Effective 11/15/2019:  
- Added coverage criteria for neuromyelitis optica spectrum disorder (NMOSD) for Soliris (eculizumab).  
- Added coverage criteria for aHUS for Ultomiris (ravulizumab-cwvz).  
- Updated associated investigational uses for Ultomiris (ravulizumab-cwvz). |
<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 4/24/2019     | - Renamed policy “Complement Inhibitors”  
- Criteria added for newly-approved Ultomiris (ravulizumab-cwvz) for PNH.  
- Updated previous Soliris (eculizumab) criteria for HUS to add nephrology specialty and clarify coverage criteria. |
| 03/19/2018    | Effective 4/1/2018:  
- Added coverage criteria for myasthenia gravis.  
- Updated associated investigational uses.  
Effective 7/1/2018: Align re-authorization to biannual (every 24-weeks) for all indications. |
| 01/13/2017    | Updated quantity limit. Added additional investigational uses. |
| 11/11/2016    | Removed site of care language from the individual drug policy; however, requirements still apply. Reference to Site of Care Review, dru408 is provided as part of criterion I.A. |
| 01/08/2016    | Annual update, no changes to criteria. |
| 01/19/2015    | New policy. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru388

Topic: Blincyto, blinatumomab

Date of Origin: March 13, 2015

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Blinatumomab (Blincyto) is an immunotherapy used in the treatment of B-cell precursor acute lymphoblastic leukemia (ALL). It is given via continuous intravenous infusion over 28 days in six-week cycles. Hospitalization is recommended when starting the infusion to monitor for severe adverse effects.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Policy/Criteria

Most contracts require pre-authorization approval of blinatumomab (Blincyto) prior to coverage.

I. Continuation of therapy (COT): Blinatumomab (Blincyto) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:

1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Blinatumomab (Blincyto) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

A. A diagnosis of relapsed or refractory B-cell precursor acute lymphoblastic leukemia (ALL).

AND

B. Blinatumomab (Blincyto) is administered in one of the following settings:

1. After at least one prior ALL therapy has been ineffective (relapsed or refractory disease).

OR

2. The ALL is in a first or second complete remission (CR) with minimum residual disease (MRD) ≥ 0.1%.
AND

C. Blinatumomab (Blincyto) will be used as monotherapy.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider blinatumomab (Blincyto) to be a self-administered medication.

B. When pre-authorization is approved, blinatumomab (Blincyto) may be authorized in the following quantities:

1. For Relapsed or refractory B-cell ALL:
   b. Reauthorization: If remission is achieved with the initial induction and consolidation cycles, up to four additional, 28-day infusions (maintenance) may be authorized.

2. For MRD-positive B-cell ALL: Up to four, 28-day infusions may be authorized.

C. No additional treatment courses will be authorized beyond nine, 28-day infusions for relapsed or refractory disease; or four, 28-day infusions for MRD-positive disease.

IV. Blinatumomab (Blincyto) is considered investigational when used concomitantly with any other ALL medication.

V. Blinatumomab (Blincyto) is considered investigational when used for all other conditions, including but not limited to diffuse large B-cell lymphoma.

Position Statement

- Blinatumomab (Blincyto) is an immunotherapy that targets CD-19-positive B-cells (precursor B-cells). It is indicated for the treatment of B-cell precursor acute lymphoblastic leukemia (ALL) that is relapsed after, or refractory to, prior therapy; or when minimal residual disease (MRD) is detected after a complete remission is achieved with multiagent chemotherapy.

- It is not indicated for mature B-cell (CD-20-positive) ALL. Other therapies are used in treating this ALL subtype.

- Blinatumomab (Blincyto) improved median overall survival (OS) relative to chemotherapy in patients with Philadelphia chromosome-negative B-cell precursor ALL who were refractory to or relapsed after prior ALL therapies. Although a survival difference was demonstrated early in therapy, survival rates in the two treatment groups were similar around 15 months which indicates that there may be a lack of long-term benefit with this therapy.
- In a small, single-arm, open-label study, blinatumomab (Blincyto) was shown to induce complete remission in 36% of patients with relapsed or refractory Philadelphia chromosome-positive B-cell precursor ALL. It is unknown if blinatumomab (Blincyto) improves OS in this subpopulation.

- A small, single-arm study evaluated blinatumomab (Blincyto) in adults with B-cell precursor ALL who had achieved a complete remission after cytotoxic chemotherapy, but had MRD. The trial found that a significant proportion of patients could achieve undetectable MRD after a cycle of blinatumomab (Blincyto). However, it is not known if this improved overall survival after a subsequent stem cell transplant. Additional, well-designed studies are needed to answer this question.

- Concomitant use of blinatumomab (Blincyto) with other ALL therapies has not been studied.

- Based on its mechanism of action, there is interest in using blinatumomab (Blincyto) in other cancers; however, there is currently no evidence supporting its safety and effectiveness in any other condition.

- Potentially serious and life-threatening reactions including Cytokine Release Syndrome and neurological toxicities have been reported with blinatumomab (Blincyto).

- Blinatumomab (Blincyto) is given as a continuous intravenous infusion for 28 days (one cycle). A minimum of a 2-week treatment-free interval is recommended between cycles. The dosing and schedule depends on the B-cell ALL setting in which it is used. Hospitalization is recommended when initiating the first two cycles to monitor for potentially life-threatening adverse effects.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

Philadelphia chromosome-negative B-cell precursor ALL

In a multicenter, open-label randomized controlled trial, blinatumomab (Blincyto) demonstrated improved overall survival (OS) relative to investigator’s choice of chemotherapy in patients with relapsed or refractory Philadelphia chromosome-negative B-cell precursor ALL. Although an early survival advantage was apparent, there appeared to be little difference in survival between groups at 15 months which indicates the potential lack of a long-term benefit. [1]

- Subjects in the trial had disease in one of the following stages: refractory to primary induction or to salvage with intensive combination therapy, first relapse with first remission lasting fewer than 12 months, second or greater relapse, or relapse at any time after an autologous hematopoietic stem cell transplant.

- Median OS was 7.7 months in the blinatumomab (Blincyto) treatment arm and 4.0 months in the chemotherapy treatment arm (HR 0.71; 95% CI [0.55, 0.93]; p = 0.01. The median duration of follow up was 11.7 months.
Because the survival curves converged by 15 to 18 months, there is some uncertainty regarding long-term benefits of this therapy.

**Philadelphia chromosome-positive B-cell precursor ALL**

A small, single-arm trial evaluated complete remission rates achieved with blinatumomab (Blincyto) in patients with relapsed or refractory Philadelphia chromosome-positive B-cell precursor ALL. The design of this study is not suitable for evaluating efficacy because it lacks a comparator and employs an unvalidated surrogate endpoint. [2]

- All subjects in the trial had prior therapy with TKIs directed against the Philadelphia chromosome [imatinib (Gleevec), dasatinib (Sprycel), nilotinib (Tasigna), or ponatinib (Pomalyst)].
- Complete remissions were achieved in approximately 36% of subjects after induction with two cycles of blinatumomab (Blincyto).
- Although disease remission is one of the goals of treatment in ALL, this endpoint has not been validated to correlate with clinical outcomes such as improved symptom control, quality of life, or survival.

**MRD-positive B-cell precursor ALL**

A small, single-arm trial evaluated blinatumomab (Blincyto) in patients who achieved a complete remission after multiagent chemotherapy, but still had minimal residual disease (MRD). [3] The evidence is preliminary and approval in this setting is provisional (FDA Accelerated approval).

- All patients enrolled in the trial were in either a first (71%) or a second (29%) hematologic complete remission with MRD.
- MRD was detected by reverse transcriptase-polymerase chain reaction or flow cytometry at a level of ≥ 0.1% (using an assay with a minimum sensitivity of 0.01%).
- Efficacy was based on the proportion of patients who achieved undetectable MRD within the first cycle of blinatumomab (Blincyto), and hematologic relapse-free survival (RFS).
  * Undetectable MRD was achieved by 70 of 86 patients (81.4%).
  * The median RFS was 22.3 months.
  * The rate of undetectable MRD and RFS was higher in patients who were in first remission than in those who were in second remission.
- Because there was no comparator in the study, it is not known if blinatumomab (Blincyto) improves any clinical outcome relative to the current standard of care (e.g. allogeneic stem cell transplant).
Treatment guidelines

The National Comprehensive Cancer Network (NCCN) ALL guideline lists multi-agent chemotherapy regimens as standard front-line therapies for Ph-negative ALL. Bone marrow transplant is an option for patients who achieve remission and have sufficient performance status. Blinatumomab (Blincyto) is listed as a category 1 recommendation for patients with relapsed/refractory Ph-negative, B-cell precursor ALL; and as a category 2A recommendation for patients with relapsed/refractory Ph-positive, B-cell precursor ALL. It is given a category 2A recommendation when used for ALL that is in complete remission when there is MRD. [4]

OTHER CANCER SETTINGS AND CONDITIONS

There is interest in using blinatumomab (Blincyto) in other B-cell-mediated cancers; however, there is currently no good evidence to support its safety and effectiveness outside of the Ph-negative B-cell precursor ALL setting.

- A small, preliminary, observational trial evaluated response rates with blinatumomab (Blincyto) in 21 subjects with relapsed or refractory diffuse large B-cell lymphoma (DLBCL). Further studies are needed to determine the optimal treatment strategy in this population. [5]

Safety [6]

- Package labeling for blinatumomab (Blincyto) includes a boxed warning for serious and potentially life-threatening or fatal Cytokine Release Syndrome (CRS) and neurological toxicity.
- The most common adverse effects (incidence of 20% or greater) reported with blinatumomab (Blincyto) in clinical trials included pyrexia, headache, peripheral edema, febrile neutropenia, nausea, hypokalemia, tremor, rash, and constipation.
- There is a Risk Evaluation and Mitigation Strategy (REMS) communication plan for blinatumomab (Blincyto) to inform healthcare providers of the following risks: Cytokine Release Syndrome, neurological toxicities, and preparation and administration errors.

Dosing [6]

- Blinatumomab (Blincyto) is administered as a continuous intravenous infusion over 28 days (one cycle). Each cycle is followed by a 2-week treatment-free interval.
- A treatment course consists of up to two cycles for induction, followed by three additional cycles for consolidation, and then up to four additional cycles of continued therapy (maintenance).
- Premedication with dexamethasone is recommended prior to each cycle. Blinatumomab (Blincyto) package labeling recommends that initial doses of cycles one and two be administered in a hospital setting.
- General adult dosing parameters (refer to package insert for more specific information and pediatric dosing recommendations):
<table>
<thead>
<tr>
<th>Cycle</th>
<th>Recommended dose, adults</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relapsed or refractory B-cell ALL</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Induction (cycle 1)</strong></td>
<td></td>
</tr>
<tr>
<td>Days 1 through 7:</td>
<td>9 mcg/day</td>
</tr>
<tr>
<td>Days 8 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 42:</td>
<td>14-day treatment-free interval</td>
</tr>
<tr>
<td><strong>Induction (cycle 2)</strong></td>
<td></td>
</tr>
<tr>
<td>Days 1 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 42:</td>
<td>14-day treatment-free interval</td>
</tr>
<tr>
<td><strong>Consolidation (cycles 3 to 5)</strong></td>
<td></td>
</tr>
<tr>
<td>Days 1 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 42:</td>
<td>14-day treatment-free interval</td>
</tr>
<tr>
<td><strong>Consolidation (cycles 6 to 9)</strong></td>
<td></td>
</tr>
<tr>
<td>Days 1 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 84:</td>
<td>56-day treatment-free interval</td>
</tr>
<tr>
<td><strong>MRD-positive B-cell ALL</strong></td>
<td></td>
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<tr>
<td><strong>Induction (cycle 1)</strong></td>
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</tr>
<tr>
<td>Days 1 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 42:</td>
<td>14-day treatment-free interval</td>
</tr>
<tr>
<td><strong>Consolidation (cycles 2 to 4)</strong></td>
<td></td>
</tr>
<tr>
<td>Days 1 through 28:</td>
<td>28 mcg/day</td>
</tr>
<tr>
<td>Days 29 through 42:</td>
<td>14-day treatment-free interval</td>
</tr>
</tbody>
</table>

**Cross References**

Marqibo, vincristine sulfate liposome injection, Medication Policy Manual, Policy No. dru278

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J9039</td>
<td>Injection, Blinatumomab (Blincyto), 1 microgram</td>
</tr>
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</table>
References


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>1/31/2018</td>
<td>There were no criteria changes with this annual update.</td>
</tr>
</tbody>
</table>
| 10/19/2018    | - Updated coverage for use in B-cell precursor ALL with MRD (new indication)  
               | - Updated quantity limitations and authorization section to include parameters for the new indication  
               | - Updated the policy with new policy language (no change to intent) |
| 9/8/2017      | - Coverage of blinatumomab (Blincyto) was expanded to include patients with relapsed or refractory Philadelphia chromosome-positive B-cell precursor ALL based on new evidence in this population (it is now covered regardless of Philadelphia chromosome status).  
               | - Dosing limitations were updated to reflect new dosing recommendations (added maintenance cycles). |
| 9/9/2016      | Added diffuse B-cell lymphoma as an investigational condition. |
| 03/13/2015    | New policy |

Drug names identified in this policy are the trademarks of their respective owners.
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Nivolumab (Opdivo) is an intravenously infused immunotherapy [a programmed death receptor-1 (PD-1) inhibitor] that is used in the treatment of several different types of cancers.
Policy/Criteria

Most contracts require pre-authorization approval of Opdivo (nivolumab) prior to coverage.

I. Continuation of therapy (COT): Opdivo (nivolumab) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Opdivo (nivolumab) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that one of the following criterion A through L below is met.

A. A diagnosis of urothelial carcinoma (UC, bladder cancer) in one of the following settings (1 or 2):
   1. Locally advanced (stage III) or metastatic (stage IV), when criteria a, b, and c below are met:
      a. Disease progression during or following platinum-containing chemotherapy (such as cisplatin or carboplatin).
      AND
b. Opdivo (nivolumab) is used as monotherapy.

AND

c. No prior use of a programmed death receptor-1 blocking antibody therapy (PD-1 inhibitor) or programmed death-ligand 1 blocking antibody therapy (PD-L1 inhibitors) [see Appendix 1].

OR

2. **Muscle-invasive urothelial carcinoma** (MIUC) when criteria a through d below are met:

   a. The patient has undergone radical resection of the bladder.

   AND

   b. There is high risk of recurrence as defined by the following (i or ii):

      i. Patient received no prior neoadjuvant cisplatin-based chemotherapy: Pathological stage of pT3, pT4a, or pN+.

      OR

      ii. Patient received prior neoadjuvant cisplatin-based chemotherapy: Pathological stage of ypT2, ypT4a, or ypN+.

   AND

   c. Opdivo (nivolumab) will be used as an adjuvant monotherapy.

   AND

   d. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

B. A diagnosis of **colorectal cancer** (CRC), locally advanced or metastatic, when criteria 1 through 4 below are met:

1. The tumor is microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) by immunohistochemistry (IHC) or polymerase chain reaction (PCR) testing.

   AND

2. Disease progression during or after standard therapy with a fluoropyrimidine (e.g., fluorouracil, capecitabine), oxaliplatin, AND irinotecan, unless all are not tolerated or there is a documented medical contraindication to all three options.

   AND

3. Opdivo (nivolumab) is used as monotherapy or in combination with Yervoy (ipilimumab).

   AND

4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).
C. A diagnosis of **head and neck squamous cell cancer** (HNSCC), recurrent or metastatic, when criteria 1, 2, and 3 below are met:

1. Disease progression on or after a platinum-containing chemotherapy regimen.

AND

2. Opdivo (nivolumab) is used as monotherapy.

AND

3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix I).

OR

D. A diagnosis of **hepatocellular carcinoma** (HCC) when criteria 1 through 4 below are met:

1. A documented Child-Pugh score of 5 or 6 (Class A).

AND

2. There has been disease progression on, or intolerance to an HCC-active oral tyrosine kinase inhibitor (TKI) [such as Nexavar (sorafenib) or Lenvima (lenvatinib)].

AND

3. Opdivo (nivolumab) is used in combination with Yervoy (ipilimumab).

AND

4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix I).

OR

E. A diagnosis of **classical Hodgkin lymphoma** (CHL) when criteria 1, 2, and 3 are met:

1. Relapse or disease progression in one of the following two settings (a OR b):
   a. After a hematopoietic stem cell transplant [HSCT; bone marrow transplant (BMT)] and post-transplant Adcetris (brentuximab vedotin).

   OR

   b. Disease progression on or after three or more lines of therapy that includes an HSCT (BMT).

   AND

   2. Opdivo (nivolumab) is used as monotherapy.

   AND

   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix I).

OR
F. A diagnosis of **malignant pleural mesothelioma** (MPM), unresectable, when criteria 1, 2, and 3 below are met:
   1. No prior use of systemic therapy for advanced disease.
      AND
   2. Opdivo (nivolumab) is used in **combination** with Yervoy (ipilimumab).
      AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see **Appendix I**).

OR

G. A diagnosis of **melanoma**, advanced (stage III or IV), when either criterion 1 or 2 below is met:
   1. Opdivo (nivolumab) is used as **monotherapy** and there has been no prior therapy with PD-1/PD-L1 blocking antibody therapy (see **Appendix I**).

OR

2. Opdivo (nivolumab) is used in **combination** with Yervoy (ipilimumab) when both criteria a and b below are met:
   a. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see **Appendix I**).
      AND
   b. No prior therapy with Yervoy (ipilimumab).

OR

H. A diagnosis of **non-small cell lung cancer** (NSCLC), advanced or metastatic, when criterion 1 or 2 below is met:
   1. **First-line setting** when criteria a through c below are met.
      a. Opdivo (nivolumab) is used in **combination** with Yervoy (ipilimumab) AND one of the following (i or ii) applies:
         i. The tumor expresses PD-L1 (≥ 1%).
            OR
         ii. Given in combination with two cycles of platinum-doublet chemotherapy (regardless of PD-L1 status).
      AND
      b. No prior systemic therapy for advanced disease.
      AND
      c. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see **Appendix I**).

OR

2. **Subsequent therapy** when criteria a through c below are met:
   a. Opdivo (nivolumab) is used as **monotherapy**.
      AND
b. Disease progression on or after a platinum-containing chemotherapy regimen (such as cisplatin or carboplatin).

AND

c. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

I. A diagnosis of renal cell cancer (RCC), unresectable locally advanced, or metastatic, and no prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

J. A diagnosis of squamous cell anal carcinoma (aSCC), recurrent or metastatic when criteria 1, 2, and 3 below are met:
   1. Disease progression on or after cytotoxic chemotherapy.
   AND
   2. Opdivo (nivolumab) will be used as monotherapy.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

K. A diagnosis of esophageal cancer when one of the following criteria 1, 2, or 3 below is met:
   1. A diagnosis of esophageal squamous cell carcinoma (ESCC), unresectable advanced, recurrent, or metastatic when criteria a, b, and c below are met:
      a. Disease progression on or after, or intolerance to at least one fluoropyrimidine- and platinum-containing chemotherapy regimen.
      AND
      b. Opdivo (nivolumab) is used as monotherapy.
      AND
      c. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).
   OR
   2. A diagnosis of esophageal adenocarcinoma, locally advanced or metastatic when criteria a through d below are met:
      a. No prior systemic therapy in the advanced disease setting.
      AND
      b. The tumor is PD-L1 positive as defined by a Combined Positive Score of 5 or more (CPS ≥ 5).
      AND
c. Opdivo (nivolumab) will be administered in combination with a fluoropyrimidine (e.g., fluorouracil, capecitabine) and platinum-containing (e.g., cisplatin, oxaliplatin) chemotherapy.

AND

d. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

3. A diagnosis of esophageal (adenocarcinoma or ESCC) or gastro-esophageal junction (GEJ) cancer, stage II or III resectable, when criteria a through e below are met:

a. Completion of prior neoadjuvant chemoradiotherapy (must have received both chemotherapy and radiation in neoadjuvant setting).

AND

b. The tumor was completely resected.

AND

c. There is residual pathologic disease (absence of complete pathological response).

AND

d. Opdivo (nivolumab) will be used as monotherapy.

AND

e. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

L. A diagnosis of gastric or gastroesophageal junction (GEJ) cancer, locally advanced or metastatic, when criteria 1 through 4 below are met:

1. No prior systemic therapy in the advanced disease setting.

AND

2. The tumor is PD-L1 positive as defined by a Combined Positive Score of 5 or more (CPS ≥ 5).

AND

3. Opdivo (nivolumab) will be administered in combination with a fluoropyrimidine (e.g., fluorouracil, capecitabine) and platinum-containing (e.g., cisplatin, oxaliplatin) chemotherapy.

AND

4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Opdivo (nivolumab) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Opdivo (nivolumab) may be authorized as follows:

1. Monotherapy, or in combination with chemotherapy for:
   a. NSCLC, aSCC, advanced melanoma, RCC (bladder cancer), MSI-H/dMMR CRC, classical HL, HNSCC, or advanced esophageal cancer: In doses up to 240 mg every 2 weeks (OR 480 mg every 4 weeks), until disease progression.
   b. Used as adjuvant therapy for resectable esophageal cancer, GEJ cancer, muscle-invasive urothelial carcinoma, or melanoma: In doses up to 240 mg every 2 weeks (OR 480 mg every 4 weeks), for up to one year.

2. Combination therapy with Cabometyx (cabozantinib) for RCC: In doses up to 240 mg every two weeks (OR 480 mg every 4 weeks), until disease progression.

3. Combination therapy with Yervoy (ipilimumab):

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Initial, in combination with Yervoy (ipilimumab)</th>
<th>Subsequent, as a monotherapy</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma or HCC</td>
<td>Up to 1 mg/kg every 3 weeks x 4 doses</td>
<td>Up to 240 mg every 2 weeks (OR up to 480 mg every 4 weeks)</td>
<td>Until disease progression</td>
</tr>
<tr>
<td>CRC (MSI-H/dMMR) or RCC</td>
<td>Up to 3 mg/kg every 3 weeks x 4 doses</td>
<td>Not applicable</td>
<td>Until disease progression, up to 24 months</td>
</tr>
<tr>
<td>NSCLC PD-L1 ≥1</td>
<td>Up to 3 mg/kg every 2 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSCLC (with 2 cycles platinos) or MPM</td>
<td>Up to 360 mg every 3 weeks</td>
<td></td>
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</tr>
</tbody>
</table>

C. Authorization may be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.
IV. The use of Opdivo (nivolumab) in combination with other targeted anti-cancer medications [except with Cabometyx (cabozantinib) for RCC, Yervoy (ipilimumab) for melanoma, CRC, RCC, NSCLC, and HCC, or as specified per the coverage criteria above] is considered investigational.

V. Opdivo (nivolumab) is considered investigational when used for all other conditions, including but not limited to:

A. Microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR) tumors [unless specified in the coverage criteria sections above].
B. Multiple myeloma.
C. Ovarian cancer.
D. Small cell lung cancer (SCLC).

Position Statement
- Opdivo (nivolumab) is an intravenously administered human programmed death receptor-1 (PD-1) blocking monoclonal anti-body (immunotherapy) used in the treatment of several types of cancers.
- The intent of this policy is to cover Opdivo (nivolumab) in settings where it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.
  * Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of Opdivo (nivolumab) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

  * It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.
- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.
- National Comprehensive Cancer Network (NCCN) guidelines recommend Opdivo (nivolumab) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.
- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.
- Opdivo (nivolumab) is coverable in doses and quantities up to those specified in the coverage criteria. It is administered for up to 12 months when used as an adjuvant therapy for resectable melanoma, and for up to 24 months for MPM and NSCLC when used in...
combination with Yervoy (ipilimumab). For its other indications, it is given until disease progression or unacceptable toxicity.

- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using Opdivo (nivolumab) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

- The use of Opdivo (nivolumab) for small cell lung cancer (SCLC), as well as a monotherapy in HCC, is now considered investigational. The FDA indications for SCLC and HCC (monotherapy) were withdrawn after confirmatory trials failed to demonstrate an improvement in any health outcome when used in these settings.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy

UROTHELIAL CARCINOMA (BLADDER CANCER)

- Advanced (locally advanced or metastatic) UC: Opdivo (nivolumab) received FDA Accelerated approval for unresectable or metastatic bladder cancer based on a single-arm, observational trial that evaluated tumor objective response rates (ORR) [CHECKMATE-275]. [1,2] Clinical benefit has not been established.
* Subjects had disease that progressed during or following a platinum-containing chemotherapy regimen, or progressive disease within 12 months of treatment with a platinum-containing chemotherapy regimen administered in the adjuvant (after surgical resection) or neoadjuvant (prior to surgical resection) settings.
* ORR was 19.6%, of which the vast majority (17%) were partial responders.
* ORR has not been shown to accurately predict clinically relevant outcomes. Additional confirmatory studies are needed to establish a clinical benefit.

**Adjuvant therapy for early-stage MIUC:** Opdivo (nivolumab) received FDA approval as an adjuvant therapy (after complete surgical resection) for patients with early-stage muscle-invasive urothelial carcinoma (MIUC) [also known as muscle-invasive bladder cancer (MIBC)] with good performance status and a high risk of disease recurrence. Approval was based on a randomized, double-blind, placebo-controlled trial [CHECKMATE-274] that evaluated disease-free survival (DFS) as the primary endpoint. [3]
  * The population was primarily White, male, and with a median age of 66 years (generally younger than a typical patient which has a median age of 73 years at diagnosis). Forty percent had a PD-L1 \(\geq 1\%\).
  * Approximately 80% of patients had tumors originating in the bladder, with the remaining 20% originating in the renal pelvis or ureter.
  * Approximately 44% of subjects had prior neoadjuvant cisplatin-based chemotherapy.
  * The DFS was 20.8 months and 10.8 months in the Opdivo (nivolumab) and placebo arms, respectively (HR 0.70; [95% CI: 0.57, 0.86]; \(p = 0.0008\)).
  * DFS has not been shown to accurately predict improvement in any clinically relevant outcome in early-stage MIUC. It is not known if adjuvant therapy will ultimately improve overall survival (OS), the outcome of interest. In addition, the ideal sequencing of agents in this clinical setting has not been determined.

The NCCN guideline lists Opdivo (nivolumab) monotherapy for UC as follows: [4]
  * **Locally advanced or metastatic disease:** Listed among many second-line systemic regimens.
  * **Adjuvant therapy for newly diagnosed MIUC with a high risk of recurrence:** Listed among potential therapy options.

**COLORECTAL CANCER (CRC), MSI-H/dMMR**
- Opdivo (nivolumab) received FDA Accelerated approval for progressive MSI-H/dMMR metastatic CRC based on tumor response from an uncontrolled, single-arm (observational) study in cohort of subjects (N = 53) whose disease had progressed during or after treatment with all standard options: fluoropyrimidine, oxaliplatin, and irinotecan [CHECKMATE-142]. [2,5] To date, there is no evidence that it provides any clinical benefit in this setting.
  * ORR was 28% (1.9% were considered to have a complete tumor response).
  * PD-L1 expression was not a condition for enrollment in the trial.
  * ORR has not been shown to accurately predict clinically relevant outcomes. Additional confirmatory studies are needed to establish a clinical benefit.
- Opdivo (nivolumab) monotherapy is listed among the treatment options for MSI-H/dMMR CRC after progression on fluoropyrimidine, oxaliplatin, and irinotecan. [4]

**HEAD AND NECK SQUAMOUS CELL CANCER (HNSCC)**
- Opdivo (nivolumab) received approval for recurrent or metastatic HNSCC based on improved overall survival (OS), a clinically relevant endpoint, relative to investigator’s choice of cetuximab (Erbitux) or single-agent chemotherapy in an open-label randomized controlled trial (N = 361) [CHECKMATE-141]. [2,6]
  * The trial included cancer of the oral cavity, pharynx, or larynx that was not amenable to curative therapy and progressive disease within 6 months of receiving platinum-based chemotherapy.
  * Median OS was 7.5 months and 5.1 months in the Opdivo (nivolumab) and investigator’s choice of therapy treatment arms, respectively. A subgroup analysis demonstrated greater improvement in median OS with Opdivo (nivolumab) when at least 1% of the cells in the tumor expressed PD-L1 (tumor proportion score of > 1%).

- The NCCN guidelines list Opdivo (nivolumab) monotherapy among treatment options for non-nasopharyngeal HNSCC when there has been disease progression on or after platinum-containing chemotherapy. [4]

**HEPATOCELLULAR CARCINOMA (HCC)**
- Opdivo (nivolumab) received FDA Accelerated approval for use in HCC after progression of disease on, or intolerance to, Nexavar (sorafenib) when given in combination with Yervoy (ipilimumab) based on a small, single-arm, preliminary study [CHECKMATE-040] that evaluated tumor response rate. Clinical benefit in this setting has not been demonstrated. [2,7]
  * Subjects had progressive disease while on, or had intolerance to, Nexavar (sorafenib) therapy.
  * Patients had Child-Pugh Class A disease (a score of A5 in 82%, and A6 in 18% of patients) and 80% had disease that had spread beyond the liver.
  * An ORRs of 33% was reported with this regimen. ORR has not been shown to accurately predict clinically relevant outcomes. Additionally, it is not known how Opdivo (nivolumab) plus Yervoy (ipilimumab) compares with other second-line HCC therapies.

- The Accelerated FDA indication for use of Opdivo (nivolumab) as a monotherapy in HCC after progression of disease on, or intolerance to, Nexavar (sorafenib) was withdrawn by the manufacturer in July of 2021 because clinical benefit was not demonstrated in confirmatory trials.

- The NCCN guideline lists Opdivo (nivolumab) monotherapy, or in combination with Yervoy (ipilimumab), among treatment options for progressive of disease after Nexavar (sorafenib) and the patient is Child-Pugh Class A (or B7 for monotherapy). [4]
CLASSICAL Hodgkin LYMPHOMA (CHL)

- Opdivo (nivolumab) received FDA Accelerated approval for as a monotherapy relapsed or refractory CHL based on two, small, single-arm, trials that measured tumor response rate [CHECKMATE-205 and -039]. Clinical benefit in this setting has not been established.\[2,8\]
  * Subjects had relapsed or refractory disease and had prior high-dose chemotherapy followed by autologous stem cell transplant rescue, and post-transplantation Adcetris (brentuximab vedotin). The median number of prior systemic regimens was four. [Note: PD-1 inhibitors, such as Opdivo (nivolumab), should NOT be given after an allogeneic stem cell transplant as it may cause serious and potentially fatal immunologic reactions].
  * ORR, the primary endpoint, not been shown to correlate with clinical outcomes such as improved symptom control, function, or quality of life, or prolonged OS.
- The NCCN guideline lists Opdivo (nivolumab) among several single-agent treatment options for relapsed or refractory CHL after high-dose chemotherapy with autologous stem cell rescue and Adcetris (brentuximab vedotin). [4]
- There is interest in the use of Opdivo (nivolumab) in combination with Adcetris (brentuximab vedotin) for cHL. However, there is insufficient evidence at this time to establish the safety or efficacy of this combination. The evidence for use in the relapsed/refractory setting is limited to phase 1 and 2 trial interim data. [9,10] Additional trials are ongoing. In the front-line setting in chemotherapy-ineligible patients, the primary endpoint (ORR) was not met with the use of Opdivo (nivolumab) in combination with Adcetris (brentuximab vedotin). [11]

MALIGNANT MELANOMA

First-line Advanced Melanoma Setting

- The primary evidence of efficacy for Opdivo (nivolumab) in previously untreated (first-line setting) patients with unresectable (stage IIIB) or metastatic (stage IV) melanoma is based on a phase 3, double-blind randomized controlled trial that compared Opdivo (nivolumab) monotherapy with dacarbazine [CHECKMATE-066]. [2,12]
  * All enrolled subjects were without a BRAF mutation.
  * Progression-free survival (PFS), a secondary endpoint, was 5.1 months with Opdivo (nivolumab) and 2.2 months with dacarbazine.
  * Preliminary survival rates at 1 year were 72.9% and 42.1% with Opdivo (nivolumab) and dacarbazine, respectively. In a subsequent three-year analysis, median OS was substantially longer in the Opdivo (nivolumab) group in a subsequent analysis. [13]

First-line Advanced Melanoma Setting in Combination with Yervoy (ipilimumab)

- The efficacy of Opdivo (nivolumab) when administered in combination with Yervoy (ipilimumab) for unresectable or metastatic melanoma in the first-line setting is based two RCTs, which found improved PFS relative to monotherapy with either drug alone. OS data was not yet mature at the time these trials were published. [2,14]
**Opdivo (nivolumab) as Subsequent Therapy for Advanced Melanoma**

- Opdivo (nivolumab) has also been evaluated in patients with advanced melanoma whose disease was refractory to therapy with Yervoy (ipilimumab) and, if BRAF mutation positive, BRAF inhibitor therapy.\(^{[2,15]}\)

  * Efficacy was based on improved tumor response rates relative to chemotherapy. There was no information with regard to improvement in any clinically relevant outcome in this setting at the time these trials were published.

  * Confirmatory evidence of efficacy in this melanoma setting was not yet mature at the time the trial was published.

**Opdivo (nivolumab) as an Adjuvant Therapy for Resectable Melanoma**

- Opdivo (nivolumab) was evaluated as an adjuvant therapy in patients with resectable stage IIIB/C or stage IV (metastatic) melanoma after complete surgical resection, as compared to Yervoy (ipilimumab) [CHECKMATE-238].\(^{[16]}\)

  * Treatment was started within 12 weeks of tumor resection and was continued for up to one year.

  * There was a statistically significant improvement in recurrence-free survival (RFS) with Opdivo (nivolumab) relative to Yervoy (ipilimumab). However, improvement in OS, a clinically relevant endpoint, is unknown.

- The NCCN guideline lists Opdivo (nivolumab), as monotherapy or in combination with Yervoy (ipilimumab), among treatment options for metastatic or unresectable for \(^{[4]}\)

  BRAF V600 wild-type melanoma. Opdivo (nivolumab) is also listed for second-line or subsequent therapy when used as a monotherapy as well as when used in the adjuvant setting for resected stage IIIB/C and stage IV disease.\(^{[17]}\)

**MALIGNANT PLEURAL MESOTHELIOMA (MPM)**

The efficacy of Opdivo (nivolumab) in combination with Yervoy (ipilimumab) for unresectable MPM in the first-line setting is based on one randomized, open-label trial, which found improved OS relative to chemotherapy (platinum plus pemetrexed) alone (18.1 vs. 14.1 months) [CHECKMATE-743].\(^{[17]}\)

- The NCCN guideline for MPM lists both platinum-based chemotherapy [category 1] and nivolumab plus ipilimumab [category 2A] as first-line, preferred regimens. Nivolumab with or without ipilimumab (if not used in 1st-line) is also listed as a second-line, treatment option [category 2A]. However, there are no trials for the use of nivolumab with or without ipilimumab as a second-line therapy. Therefore, the use of nivolumab in the 2nd line setting is not coverable.\(^{[4]}\)

**NON-SMALL LUNG CANCER (NSCLC)**

**Front-line use:**

**In Combination with Yervoy (ipilimumab) and Platinum-Doublet**

- The efficacy of Opdivo (nivolumab) when administered in combination with Yervoy (ipilimumab) and two cycles of platinum-doublet chemotherapy for recurrent or September 1, 2022

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
metastatic NSCLC in the first-line setting is based on one randomized, open-label trial, which found improved OS relative to chemotherapy alone [CHECKMATE-9LA]. [2]

* Subjects received Opdivo (nivolumab) 360 mg IV every 3 weeks, Yervoy (ipilimumab) 1 mg/kg IV every 6 weeks, and platinum-doublet chemotherapy IV every 3 weeks for 2 cycles; or platinum-doublet chemotherapy administered every 3 weeks for 4 cycles. Study treatment continued until disease progression, unacceptable toxicity, or for up to 2 years.

* Patients received no prior systemic therapy for metastatic disease.

* OS was 14.1 months with the addition of nivolumab/ipilimumab versus 10.7 months with chemotherapy alone. These efficacy results are from the prespecified interim analysis when 351 events were observed (87% of the planned number of events for final analysis). With an additional 4.6 months of follow-up, the hazard ratio for overall survival was 0.66 (95% CI: 0.55, 0.80) and median survival was 15.6 months (95% CI: 13.9, 20.0) and 10.9 months (95% CI: 9.5, 12.5) for patients in the treatment arm or control arm, respectively.

**In Combination with Yervoy (ipilimumab)**
- The efficacy Opdivo (nivolumab) with Yervoy (ipilimumab) for metastatic NSCLC in the first-line setting is based on one open-label, phase 3 trial, which found improved OS versus chemotherapy in PD-L1 expressing tumors [CHECKMATE-227]. [18]

* Patients had received no prior systemic therapy for metastatic disease.

* Among the patients with a PD-L1 expression level of 1% or more, the median OS was 17.1 months with nivolumab plus ipilimumab vs. 14.9 months with chemotherapy, with 2-year overall survival rates of 40.0% and 32.8%, respectively.

**Monotherapy:** Front-line treatment of metastatic NSCLC with single agent Opdivo (nivolumab) was not superior to chemotherapy based on a phase 3 trial in this setting. The study failed to meet its primary endpoint of PFS [KEYNOTE-026]. [19] No information on OS has been released to date.

**Subsequent-line use:**

**Opdivo (nivolumab) as Subsequent Therapy for Metastatic NSCLC**
- The efficacy of Opdivo (nivolumab) in metastatic NSCLC is based on two RCTs, one in subjects with squamous histology and one in subjects with nonsquamous histology. [2,20,21]

* Subjects enrolled in the trials had progression of disease during or after chemotherapy with a platinum doublet. Patients with a known EGFR mutation or ALK translocation were allowed to have one additional line of tyrosine kinase inhibitor therapy. The studies compared Opdivo (nivolumab) 3 mg/kg IV every two weeks with docetaxel 75 mg/m² IV every three weeks. Both were administered as monotherapy.

* Median OS was statistically superior in the Opdivo (nivolumab) treatment arm relative to the docetaxel arm in both squamous and nonsquamous populations. The difference was considered to be clinically relevant.

* In the population with nonsquamous histology, it was noted that there was a positive correlation between the level of PD-L1 expression and the efficacy of
Opdivo (nivolumab) in metastatic NSCLC. Although Opdivo (nivolumab) therapy is currently not selected based on level of PD-L1 expression, future studies may help to clarify the role of testing in the selection of patients who are most likely to benefit from this therapy.

* The clinical utility of nivolumab as a first-line therapy in NSCLC (nonsquamous or squamous) has not been demonstrated.

The NCCN guideline lists Opdivo (nivolumab) monotherapy among recommended treatment options for locally advanced or metastatic squamous and nonsquamous NSCLC when used as a subsequent therapy. [4]

**RENAPEAR CELL CARCINOMA (RCC)**

*Front-line use:*

**In Combination with Yervoy (ipilimumab)**

- A large, randomized, open-label trial compared the combination of Yervoy (ipilimumab) plus Opdivo (nivolumab) with Sutent (sunitinib) as initial therapy for patients with intermediate- to poor risk, unresectable or metastatic RCC [CHECKMATE-214]. [22]
  
  * Yervoy (ipilimumab) was initiated for four doses with Opdivo (nivolumab) then Opdivo (nivolumab) monotherapy was continued until disease progression.
  
  * The population included favorable-, intermediate-, or poor-risk disease; however, only patients with intermediate- or poor risk disease were evaluated for efficacy.
  
  * There was no statistical difference in PFS between the two treatment groups. Efficacy was based on a modest improvement in survival at 18 months (interim analysis) relative to Sutent (sunitinib). Median survival has not been reached in either group. It is too soon to make conclusions regarding its net health benefit in this setting.

- The NCCN guideline lists Opdivo (nivolumab) among the recommended front-line therapies for patients with intermediate- to poor risk advanced RCC when given in combination with Yervoy (ipilimumab). [4]

**In Combination with Cabometyx (cabozantinib)**

- A large, open-label, randomized active-controlled trial compared the combination of Opdivo (nivolumab) plus cabozantinib with Sutent (sunitinib) in treatment-naïve patients with locally advanced (unresectable) or metastatic RCC with clear cell histology [CHECKMATE-9ER]. [2]
  
  * Patients were enrolled regardless of tumor PD-L1 expression.
  
  * The population included patients with favorable-, intermediate-, and poor-risk disease; however, approximately 75% had intermediate- to poor-risk disease.
  
  * The median PFS was 16.6 months and 8.3 months in the Opdivo (nivolumab)/Cabometyx (cabozantinib) and Sutent (sunitinib) treatment groups, respectively.
  
  * Median OS was not reached in either group; however, early results favor the Opdivo (nivolumab)/Cabometyx (cabozantinib) treatment arm.
- A more informative comparator would have been a monotherapy Cabometyx (cabozantinib) arm.
- The NCCN guideline lists the combination of Opdivo (nivolumab) and Cabometyx (cabozantinib) among several front-line options for advanced RCC with clear cell histology.[4]

**Subsequent-line use:**
- The primary evidence of efficacy in RCC is based on a phase 3, double-blind randomized controlled trial that compared Opdivo (nivolumab) monotherapy with everolimus (Afinitor) in patients with refractory unresectable or metastatic RCC, after prior antiangiogenic therapy with bevacizumab or a multi-kinase inhibitor.[2,23]
  * Subjects were previously treated with at least one of the following: bevacizumab, Sutent (sunitinib), Votrient (pazopanib), Inlyta (axitinib), or Nexavar (sorafenib).
  * Efficacy was based on improved OS with Opdivo (nivolumab), a clinically relevant endpoint, relative to everolimus (Afinitor) at the time of the prespecified interim analysis (median OS of 25 months and 19.6 months, respectively).
- The NCCN guideline lists Opdivo (nivolumab) among several treatment options for subsequent therapy of unresectable or metastatic RCC after progression of disease on front-line therapy [e.g. multi-kinase inhibitors, bevacizumab]. [4]

**GASTRIC, GASTROESOPHAGEAL JUNCTION (GEJ), AND ESOPHAGEAL ADENOCARCINOMA CANCER - ADVANCED**
- The efficacy of Opdivo (nivolumab) in gastric, GEJ, and advanced esophageal cancer is based on a phase 3, open-label, randomized controlled trial [CheckMate-649] that compared front-line treatment with Opdivo (nivolumab) plus chemotherapy versus chemotherapy alone in patients with unresectable advanced, or metastatic gastric or GEJ cancer and esophageal adenocarcinoma. [2,24]
  * Seventy percent of the population had gastric cancer, 18% had GEJ cancer, and the remaining 12% had esophageal adenocarcinoma. Ninety-six percent of the population had metastatic disease.
  * Opdivo (nivolumab) was given in combination with fluoropyrimidine (fluorouracil or capecitabine) plus oxaliplatin chemotherapy. Patients in the comparator arm received the same chemotherapy regimen given alone.
  * The trial initially enrolled patients regardless of PD-L1 CPS status; however, a protocol amendment was made when the trial was underway which required a PD-L1 CPS of 5% or more. This resulted in an overall population of patients with tumors that had a higher than average PD-L1 CPS expression (the population was enriched with high PD-L1-expressing tumors).
  * Efficacy was based on the primary efficacy population of patients with tumors with a PD-L1 CPS ≥ 5. The median OS was 14.4 months and 11.1 months in the Opdivo (nivolumab) and comparator arms, respectively.
  * Results in the ITT population (all patients, regardless of tumor PD-L1 CPS expression) are not reliable as this population was enriched with patients whose
tumors had high PD-L1 CPS expression and were more likely to respond to PD-1 inhibitor therapy.

- The NCCN guideline lists Opdivo (nivolumab) when used in combination with a fluoropyrimidine plus oxaliplatin among several treatment options for the front-line treatment of unresectable locally advanced or metastatic gastric or GEJ cancer, as well as esophageal or esophagogastric junction adenocarcinoma, with a PD-L1 combined positive score (CPS) of at least 5. [4]

ESOPHAGEAL AND GASTROESOPHAGEAL JUNCTION (GEJ) CANCER

Early-Stage (Resectable) Esophageal or GEJ Cancer – as ADJUVANT therapy

- The efficacy of Opdivo (nivolumab) in esophageal or GEJ cancer is based on a phase 3, randomized, double-blind controlled trial [CheckMate-577] that compared adjuvant treatment with Opdivo (nivolumab) versus placebo in patients with stage II or III (resectable) esophageal or GEJ. [2,25]
  * The trial included tumors with both adenocarcinoma (71%) and squamous cell carcinoma (29%) histology.
  * All patients had to have completed neoadjuvant chemoradiotherapy (CRT) followed by a complete resection where the patient was rendered free of disease.
  * Additionally, all patients had residual pathological disease (absence of pathological complete response) after their initial treatment. Patients with resectable metastatic disease were not eligible to participate in the study.
  * Patients were randomized to either nivolumab or placebo for a total duration of up to one year of adjuvant therapy.
  * Efficacy was based on disease-free survival, an unvalidated surrogate endpoint. Median DFS was 22.4 months and 11.0 months in the Opdivo (nivolumab) and placebo treatment arms, respectively. OS results are not mature.

- The NCCN guideline lists Opdivo (nivolumab) among several treatment options for adjuvant use in resected esophageal or esophagogastric junction cancer with residual disease. [4]

Advanced Esophageal Squamous Cell Cancer (ESCC)

- The efficacy of Opdivo (nivolumab) in refractory, unresectable advanced, recurrent, or metastatic ESCC is based on a phase 3, open label, randomized controlled trial that compared Opdivo (nivolumab) with investigator's choice of taxane (paclitaxel or docetaxel). There was a modest OS improvement with Opdivo (nivolumab) relative to chemotherapy [ATTRACTION-3]. [26]
  * Patients were refractory or intolerant to at least one fluoropyrimidine- and platinum-based regimen.
  * At a minimum follow-up time (i.e., time from random assignment of the last patient to data cutoff) of 17.6 months, OS was statistically significantly improved with Opdivo (nivolumab) versus chemotherapy (median 10.9 vs 8.4 months).
The NCCN guideline lists Opdivo (nivolumab) monotherapy among several treatment options for second- or subsequent-line therapy of advanced esophageal or esophagogastric junction cancer. [4]

**Advanced Esophageal Adenocarcinoma**

- The efficacy of Opdivo (nivolumab) in advanced esophageal adenocarcinoma is based on a phase 3, open-label, randomized controlled trial [CheckMate-649] that compared frontline treatment with Opdivo (nivolumab) plus chemotherapy versus chemotherapy alone in patients with unresectable advanced, or metastatic gastric or GEJ cancer, or esophageal adenocarcinoma. [2,24]

*Note: This same trial was used for the approval of Opdivo (nivolumab) in advanced gastric and GEJ cancer. (See “GASTRIC, AND GASTROESOPHAGEAL JUNCTION (GEJ), AND ESOPHAGEAL ADENOCARCINOMA CANCER - ADVANCED”) [4]*

**ANAL SQUAMOUS CELL CARCINOMA (aSCC)**

- Although not FDA-approved for this use, Opdivo (nivolumab) and Keytruda (pembrolizumab) have been used in anal squamous cell carcinoma that is refractory to or recurs on front-line chemotherapy due to the lack of other effective therapies.

- The majority of patients with aSCC respond well to standard cytotoxic chemotherapy.

- Preliminary studies suggest these therapies have potential activity in this setting:
  - There was a reported ORR of 17% (all partial responses) in 24 patients with recurrent PD-L1-positive (> 1%) advanced anal squamous cell carcinoma who received Keytruda (pembrolizumab). [27]
  - There was a reported ORR of 24% (two complete and seven partial responses) in 37 patients with treatment refractory metastatic anal squamous cell carcinoma who received Opdivo (nivolumab). [28]
  - Additional studies are needed to establish whether there is a lasting clinical benefit with these PD-1 inhibitors in this treatment setting.

- Both Keytruda (pembrolizumab) and Opdivo (nivolumab) are listed as treatment options as subsequent therapy for recurrent anal carcinoma in the NCCN guideline. [4]

- Given the lack of treatment alternatives in a relatively small patient population, the use of Opdivo (nivolumab) is considered medically necessary and coverable in chemotherapy-refractory disease.

**INVESTIGATIONAL USES**

- **Small cell lung cancer (SCLC):**
  - Opdivo (nivolumab) received Accelerated approval for in metastatic SCLC, based on a small, single-arm, open label study that evaluated tumor response rate in a cohort of patients with pretreated metastatic SCLC [CHECKMATE-032]. [29]
  - However, subsequent trials [CHECKMATE -451 and -331] failed to demonstrate a proven health benefit and the company withdrew the FDA indication. [30]

Therefore, the use of Opdivo (nivolumab) for SCLC is considered investigational at this time.
Other cancers: PD-1 inhibitor medications, including Opdivo (nivolumab), are actively being studied in many different cancers. Ongoing areas of research include, but are not limited to, use in multiple myeloma, ovarian cancer, and DLBCL (other than listed in the coverage criteria). Whether Opdivo (nivolumab) provides any clinical benefit in these settings is still being investigated. The evidence is limited to early phase trials. Larger trials are needed to establish the safety and efficacy of Opdivo (nivolumab) in these conditions.

Sarcoma (including osteosarcoma): The evidence for various soft tissue sarcomas (STS) including Ewing sarcoma, spindle cell sarcoma, and osteosarcoma, is limited to a single open-label, non-comparative phase 2 trial of Opdivo (nivolumab) with or without Yervoy (ipilimumab). The primary endpoint (ORR) was not met in the nivolumab monotherapy arm. Additional trials are ongoing with combination therapy.

Sequential therapy: The study of Opdivo (nivolumab) in combination and in sequence with other immunotherapies and targeted therapies is underway. Early results appear promising; however, the optimal sequencing, patient selection, and overall benefit of combination therapies has not yet been determined.  

- There is an ongoing study of Opdivo (nivolumab) given sequentially with Yervoy (ipilimumab) in patients with advanced or metastatic melanoma [CHECKMATE-064 trial].
- There is a phase 2 trial in progress that combines Sutent (sunitinib) plus Opdivo (nivolumab) in KIT-mutated advanced melanoma.
- There is a study about to recruit that will compare the combination of Opdivo (nivolumab) with dabrafenib (Tafinlar) and/or trametinib (Mekinist).

Dosing [2]

- As monotherapy, the dose of Opdivo (nivolumab) is 240 mg IV every 2 weeks in most all indications. Alternately, it may be given in a dose of 480 mg every 4 weeks or 360 mg every 3 weeks.
- When initially approved, Opdivo (nivolumab) dosing was based on weight; however, subsequent studies have shown that similar results are achieved with newly labeled flat dosing described above.
- The exception to flat dosing is when Opdivo (nivolumab) is administered in combination with Yervoy (ipilimumab). In this setting, lower weight-based doses (1 mg/kg or 3 mg/kg) are used and coverable doses mirror FDA-approved dosing (see Quantity Limits section).
- Therapy with Opdivo (nivolumab) is continued for up to one year when used in the adjuvant melanoma and esophageal cancer settings, up to two years when used in combination with Yervoy (ipilimumab) for MPM and NSCLC, and until disease progression or unacceptable toxicity when used in all other conditions (see Quantity Limits section).
Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies

**Programmed death receptor-1 (PD-1) inhibitors**

- Jemperli (dostarlimab)
- Keytruda (pembrolizumab)
- Libtayo (cemiplimab-rwlc)
- Opdivo (nivolumab)

**Programmed death-ligand 1 (PD-L1) inhibitor**

- Bavencio (avelumab)
- Imfinzi (durvalumab)
- Tecentriq (atezolizumab)

*a Or as listed on the FDA.gov website

Cross References

- Molecular Analysis for Targeted Therapy of Non-Small Cell Lung Cancer (NSCLC), Medical Policy Manual, Genetic Testing Policy No. 56
- Adcetris, brentuximab vedotin, Medication Policy Manual, Policy No. dru264
- Bavencio, avelumab, Medication Policy Manual, Policy No. dru499
- Cabometyx, cabozantinib, Medication Policy Manual, Policy No. dru290
- Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500
- Jemperli, dostarlimab, Medication Policy Manual, Policy No. dru673
- Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367
- Lenvima, lenvatinib, Medication Policy Manual, Policy No. dru398
- Libtayo, cemiplimab-rwlc, Medication Policy Manual, Policy No. dru565
- Nexavar, sorafenib, Medication Policy Manual, Policy No. dru134
- Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463
- Yervoy, ipilimumab, Medication Policy Manual, Policy No. dru238

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<td>HCPCS</td>
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<td>3/18/2022</td>
<td>Coverage criteria were added for adjuvant use of Opdivo (nivolumab) in muscle-invasive urothelial carcinoma (MIUC) with a high risk of recurrence (new indication).</td>
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| 10/15/2021    | • Removed coverage of Opdivo (nivolumab) as a monotherapy for progressive, advanced hepatocellular carcinoma (HCC) based on the withdrawal of this indication from package labeling (clinical benefit not established in confirmatory trials).  
  • Added coverage of Opdivo (nivolumab) for advanced gastric cancer, GEJ cancer, and esophageal adenocarcinoma for tumors with PD-L1 CPS $\geq 5$ when used in combination with chemotherapy.  
  • Added coverage of Opdivo (nivolumab) for up to one year for resectable (stage II or III) esophageal or GEJ cancer when used as adjuvant therapy (as a single agent) after neoadjuvant therapy with complete resection when there is residual pathologic disease.  
  • Updated quantity limitations for new indications. |
| 4/21/2021     | • Added coverage criteria for MPM and RCC (1st line, in combination with cabozantinib), new FDA indications (effective 5/15/2021). Because the new RCC indication expands use of nivolumab in RCC, existing coverage criteria for RCC were broadened to simplify administration of this policy.  
  • The criteria under UC were simplified for more straight-forward application of the policy. Criteria were changed from defining coverage for specific treatment settings to a slightly broader, more general statement (disease progression on or following platinum-containing therapy).  
  • The criteria under CRC were streamlined for easier application (the criterion pertaining to prior use of systemic therapy in the adjuvant setting was removed).  
  • The criteria under HCC were streamlined for easier application (the criterion defining coverage based on separate Child-Pugh class ratings for nivolumab monotherapy and for combination nivolumab and ipilimumab therapy were combined).  
  • The criteria under cHL were streamlined by removing the word ‘autologous’ as a descriptor for HSCT. This is a simplification and not a change to intent.  
  • The criteria under melanoma were simplified by removing language specific to use in the adjuvant setting. There is no change to the intent of the policy (use in the adjuvant setting is still covered under the more general language).  
  • Under the NSCLC criteria the requirement for documenting that ‘no
<table>
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<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td></td>
<td>EGFR and ALK genomic tumor aberrations are present’ was removed. This is a simplification and does not change the intent of the policy.</td>
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<td></td>
<td>• Removed coverage criteria for SCLC (FDA indication withdrawn) and added use in SCLC to list of ‘Investigational uses.</td>
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<tr>
<td></td>
<td>• Updated quantity limitations for new indications.</td>
</tr>
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<td></td>
<td>• Updated COT language (no change to policy intent).</td>
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<tr>
<td>7/22/2020</td>
<td>• Added coverage criteria for use in advanced hepatocellular carcinoma (HCC).</td>
</tr>
<tr>
<td></td>
<td>• Added coverage criteria for use in front-line metastatic NSCLC.</td>
</tr>
<tr>
<td></td>
<td>• Added coverage criteria for use in esophageal squamous cell carcinoma (ESCC).</td>
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<td></td>
<td>• Updated quantity limitations for new indications.</td>
</tr>
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<td></td>
<td>• Updated ‘Investigational uses’ (removed NSCLC, first-line).</td>
</tr>
<tr>
<td>6/15/2020</td>
<td>Removed references to brand Avastin from policy to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>• Added coverage for use in squamous cell anal carcinoma.</td>
</tr>
<tr>
<td></td>
<td>• Clarified step therapy requirements for hepatocellular carcinoma.</td>
</tr>
<tr>
<td></td>
<td>• Added continuation of therapy (COT) criteria.</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>No changes to coverage criteria with this annual update.</td>
</tr>
<tr>
<td>10/19/2018</td>
<td>• Added coverage for use in metastatic SCLC (new indication).</td>
</tr>
<tr>
<td></td>
<td>• Updated quantity limitations for new indication.</td>
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<tr>
<td></td>
<td>• Updated ‘Investigational uses’ (removed SCLC).</td>
</tr>
<tr>
<td>8/17/2018</td>
<td>• Added coverage criteria for use in MSI-H metastatic CRC and advanced RCC when used in combination with Yervoy (ipilimumab).</td>
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<tr>
<td></td>
<td>• Updated “Investigational uses” (removed front-line use in RCC).</td>
</tr>
<tr>
<td></td>
<td>• Updated the ‘Administration, Quantity Limitations, and Authorization Period’ section to include the new front-line RCC and CRC (in combination with Yervoy) indications.</td>
</tr>
<tr>
<td>4/20/2018</td>
<td>• Added coverage criteria for subsequent treatment of hepatocellular carcinoma, and adjuvant therapy for resectable melanoma.</td>
</tr>
<tr>
<td></td>
<td>• Dosing and quantity limitations were updated to reflect use in the two additional settings listed above.</td>
</tr>
<tr>
<td></td>
<td>• Clarified authorization is valid “until disease progression” (no change to intent).</td>
</tr>
<tr>
<td></td>
<td>• The list of investigational uses was updated to include SCLC and front-line use in RCC.</td>
</tr>
<tr>
<td>3/16/2018</td>
<td>Update dosing (240 mg every 2 weeks or 480 mg every 4 weeks).</td>
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<tr>
<td>11/10/2017</td>
<td>• Coverage criteria were updated to include MSI-H/dMMR metastatic CRC.</td>
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<td>Revision Summary</td>
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<tr>
<td>9/8/2017</td>
<td>• The investigational uses and Quantity Limitation sections of the policy were also updated as they relate to MSI-H/dMMR CRC.</td>
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<tr>
<td></td>
<td>• Coverage criteria updated for Hodgkin lymphoma (HL) to reflect currently available evidence and to make consistent with HL criteria in the pembrolizumab medication policy.</td>
</tr>
<tr>
<td></td>
<td>• NSCLC coverage criteria regarding prerequisite therapies was clarified to reflect the standard of care and currently available evidence. In patients with EGFR or ALK mutations, front-line treatment with appropriate EGFR or ALK TKI therapy, followed by platinum-based chemotherapy, is the standard of care. This is consistent with the sequencing used in the study population.</td>
</tr>
<tr>
<td>3/10/2017</td>
<td>• Added criteria for coverage in HNSCC and bladder cancer.</td>
</tr>
<tr>
<td></td>
<td>• Updated NSCLC criteria such that prior use of a PD-L1 inhibitor precludes coverage.</td>
</tr>
<tr>
<td>10/13/16</td>
<td>• Updated QL to be in line with FDA labeling change that occurred on 9/15/16.</td>
</tr>
<tr>
<td>9/9/2016</td>
<td>• Add policy coverage criteria for classical Hodgkin lymphoma (CHL), a new FDA indication, and remove it as an ‘investigational’ use.</td>
</tr>
<tr>
<td>3/11/2016</td>
<td>• The coverage criteria for Opdivo in melanoma were reorganized; however, the intent of the criteria was not altered.</td>
</tr>
<tr>
<td></td>
<td>• Several appendices were combined and then updated to include renal cell carcinoma (RCC) therapies.</td>
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<tr>
<td></td>
<td>• The appendix describing the different NSCLC histologies was deleted.</td>
</tr>
<tr>
<td>12/11/2015</td>
<td>• Add policy coverage for new FDA indications:</td>
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<td></td>
<td>- Use in combination with Yervoy for melanoma</td>
</tr>
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<td></td>
<td>- Use in nonsquamous NSCLC</td>
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<tr>
<td></td>
<td>- Use in RCC</td>
</tr>
<tr>
<td></td>
<td>• Add criteria to prevent the use of sequential therapy of PD1s (Opdivo/Keytruda).</td>
</tr>
<tr>
<td></td>
<td>• Add Appendix 1, with a list of available PD1s.</td>
</tr>
<tr>
<td></td>
<td>• Add Appendix 3, with a list of other targeted therapies for melanoma (modified the table of BRAF inhibitors).</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru393

Topic: Xgeva, denosumab

Date of Origin: March 13, 2015

Committee Approval Date: October 15, 2021

Next Review Date: December 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Denosumab (Xgeva) is a medication used to prevent skeletal complications of bone metastases from solid tumor cancers and multiple myeloma. In addition, it is also used for the treatment of giant cell tumor of the bone and hypercalcemia of malignancy. It is a monoclonal antibody that targets the receptor activator of nuclear factor kappa B ligand (RANKL). Denosumab (Xgeva) prevents RANKL from activating its receptor, RANK, on the surface of osteoclasts, their precursors, and osteoclast-like giant cells.

PLEASE NOTE: Denosumab is also marketed as Prolia and is used treat osteoporosis (bone loss). There is a separate medication policy for denosumab (Prolia) for these indications, specifically.
Policy/Criteria
Most contracts require pre-authorization approval of denosumab (Xgeva) prior to coverage.

I. Continuation of therapy (COT): Denosumab (Xgeva) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New Starts (Treatment-naive patients): Denosumab (Xgeva) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, or C is met.

A. Prevention of skeletal related events (SRE; such as fractures) in patients with:
   1. Bone metastases from any solid tumor or multiple myeloma.
   AND
   2. Prior treatment with an IV bisphosphonate [e.g., pamidronate or zoledronic acid (Zometa)] has been ineffective, contraindicated, or not tolerated.
PLEASE NOTE: Ineffective is defined as having a skeletal related event while on bisphosphonate therapy. Cancer progression is NOT considered a lack of efficacy. A contraindication to IV bisphosphonates may include, but is not limited to, creatinine clearance of less than 35 ml/min.

OR

B. Treatment of giant cell tumor of the bone when:
   1. The tumor is unresectable.

OR

2. The tumor is resectable, but surgical resection is documented as medically contraindicated.

OR

C. Treatment of hypercalcemia of malignancy when:
   1. The albumin-corrected calcium is above 12.5 mg/dL (3.1 mmol/L) (see Appendix 1).

   AND

   2. Prior treatment with an IV bisphosphonate [e.g., pamidronate or zoledronic acid (Zometa)] has been ineffective, contraindicated, or not tolerated.

PLEASE NOTE: Ineffective is defined as having persistent hypercalcemia despite bisphosphonate therapy. Cancer progression is NOT considered a lack of efficacy. A contraindication to IV bisphosphonates may include, but is not limited to, creatinine clearance of less than 35 ml/min.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers denosumab (Xgeva) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved denosumab (Xgeva) may be authorized:
   1. In quantities up to 13 of the 120 mg injections per year for the prevention of complications of bone metastases (SREs) from solid tumor cancers or multiple myeloma.
   2. In quantities up to 15 of the 120 mg injections per year for the treatment of giant cell tumor of the bone and hypercalcemia of malignancy.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.
IV. Denosumab (Xgeva) is considered not medically necessary for the treatment of osteoporosis.

V. Denosumab (Xgeva) is considered investigational when used for all other conditions.

Position Statement
Summary
- Denosumab (Xgeva) is a monoclonal antibody used for the prevention of skeletal related events (SREs) in patients with bone metastases from solid tumor cancers (e.g., breast cancer, prostate cancer) or multiple myeloma. It is also used for the treatment of giant cell tumor of the bone and hypercalcemia of malignancy.
- Generic IV bisphosphonates (pamidronate and zoledronic acid) provide the best value for prevention of skeletal related events (SREs; such as fractures) in patients with solid tumors or multiple myeloma.
- There is insufficient evidence of superior safety or tolerability of denosumab (Xgeva) over bisphosphonates. Both have a risk of osteonecrosis of the jaw (ONJ).
- There is reliable evidence that denosumab (Xgeva) is a potent antiresorptive therapy for the prevention of SREs in patients with some cancers. The effect is consistent across the placebo-controlled trials and comparative, non-inferiority trials. However, there uncertainty in the evidence with regard to whether denosumab (Xgeva) is better than other available treatment options.
- Denosumab (Xgeva) and zoledronic acid (generic Zometa) appear to be at least similar in delaying the time to first skeletal related event (SRE) in patients with metastases from solid tumor cancers; however, the clinical relevance of delaying the time to first SRE is uncertain relative to prevention of SREs, reduction in the number of SREs, or overall survival.
- The evidence for efficacy for denosumab (Xgeva) for the treatment of giant cell tumor of the bone comes from two open-label trials that demonstrated a decrease in tumor size in 25% of patients. Patients in the trials had giant cell tumor of the bone that was either recurrent, unresectable, or for which planned surgery was likely to result in severe morbidity.
- The evidence for efficacy for denosumab (Xgeva) for hypercalcemia of malignancy comes from a single-arm trial in patients refractory to treatment with prior IV bisphosphonate therapy. Denosumab (Xgeva) was associated with lowering corrected serum calcium 63.6% of patients treated with at day ten.
- The recommended dose of denosumab (Xgeva) for prevention of skeletal-related events in multiple myeloma and bone metastasis from solid tumors is 120 mg every four weeks. For giant cell tumor of the bone and hypercalcemia of malignancy, the recommended dose is 120 mg every four weeks with additional 120 mg doses on days 8 and 15 of the first month of therapy.
Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

CANCER-RELATED BONE METASTASES

Metastatic Breast and Prostate Cancer:
- The effectiveness of denosumab (Xgeva) for bone metastases from breast or prostate cancer relative to zoledronic acid was evaluated in two low confidence, randomized, double-blind, non-inferiority trials that included 2,046 women with bone metastases from breast cancer and 1,904 men with metastatic prostate cancer.[1,2]
  * The primary endpoint in both trials was the non-inferiority of denosumab (Xgeva) relative to zoledronic acid for time to first SRE (defined as bone pain, pathologic fractures, spinal cord compression, and bone complications that required radiation or surgery).

Breast Cancer:
- Denosumab (Xgeva) was shown to be at least similar to zoledronic acid for delaying the time to first SRE in patients with metastatic breast cancer and metastatic prostate cancer. The study authors concluded that denosumab (Xgeva) was superior to zoledronic acid for delaying time to first SRE; however, the evidence is of insufficient quality to validate that conclusion. There was no difference between treatment groups for overall survival or disease progression.[2]
- The National Comprehensive Cancer Network (NCCN) Breast Cancer guideline recommends that denosumab (Xgeva), zoledronic acid, or pamidronate (all with calcium and vitamin D supplementation) should be given in addition to chemotherapy or endocrine therapy if bone metastasis is present. There is no preference given to one agent over the other, as all are considered a category 1 recommendation.[3]
- The American Society of Clinical Oncology (ASCO) guideline recognizes denosumab (Xgeva), pamidronate and zoledronic acid as treatment options for patients with breast cancer with evidence of bone metastases. Per the ASCO guideline, there is insufficient evidence to demonstrate greater efficacy of one product over another for the prevention and treatment of skeletal-related events.[4]

Prostate Cancer:
- There is low confidence in the evidence that denosumab (Xgeva) is superior to zoledronic acid because the clinical relevance of delaying the time to first SRE is uncertain, particularly in the absence of improved overall survival or disease progression. Additional concerns with the studies include high attrition and the potential for suboptimal dosing of zoledronic acid.[1]
The NCCN Prostate Cancer guideline recommends both zoledronic acid (category 2A recommendation) and denosumab (Xgeva) (category 1 recommendation) for the prevention of skeletal-related events in patients with prostate cancer if bone metastases is present. However, there is low confidence in the evidence that denosumab (Xgeva) is superior to zoledronic acid.

**Other Solid Tumor Cancers and Multiple Myeloma:**

The effectiveness of denosumab (Xgeva) relative to zoledronic acid was evaluated in a low confidence, randomized, double-blind, non-inferiority trial that included 1,779 patients with bone metastases from various advanced solid tumor cancers (excluding breast or prostate cancer) or patients with multiple myeloma. The primary endpoint was the non-inferiority of denosumab (Xgeva) relative to zoledronic acid for time to first SRE. Denosumab (Xgeva) was shown to be non-inferior to zoledronic acid for time to first SRE. There was no difference between treatment groups for overall survival or disease progression. The trial is considered low confidence because the clinical relevance of delaying the time to first SRE is uncertain, particularly in the absence of improved overall survival or disease progression. Additional concerns with the study include high attrition and the potential for suboptimal dosing of zoledronic acid.

In a subgroup analysis of patients with multiple myeloma (n = 180), an increase in mortality was observed with denosumab (Xgeva) relative to zoledronic acid. A follow-up non-inferiority trial demonstrated the non-inferiority of denosumab (Xgeva) compared to zoledronic acid. No difference in mortality was observed.

**GIANT CELL TUMOR OF THE BONE:**

The safety and efficacy of denosumab (Xgeva) was evaluated in 282 adult or skeletally mature adolescent patients with giant cell tumor of the bone. Two open-label, uncontrolled trials studied denosumab (Xgeva) in patients with giant cell tumor of the bone that was recurrent, unresectable, or for which surgery would likely result in morbidity. Objective response rate (decrease in tumor size) was evaluated as the primary efficacy endpoint. The overall objective response rate was 25%, and all responses were partial responses. The NCCN Bone Cancer guideline recognizes denosumab (Xgeva) as a category 2A recommendation for giant cell bone tumors that are unresectable or are resectable with unacceptable morbidity. Interferon, peg-interferon, radiation therapy, and observation are also listed as category 2A recommendations in these treatment settings.

**HYPERCALCEMIA OF MALIGNANCY:**

The safety and efficacy of denosumab (Xgeva) was demonstrated in an open-label, single-arm trial in 33 patients with hypercalcemia of malignancy (with or without bone metastases).
Patients were refractory to treatment with IV bisphosphonate therapy. Refractory hypercalcemia of malignancy was defined as albumin-corrected calcium of > 12.5 mg/dL (3.1 mmol/L) despite treatment with IV bisphosphonate in the seven to thirty days prior to initiation of denosumab (Xgeva) therapy.

The primary outcome measure was the proportion of patients achieving a response, defined as corrected serum calcium ≤ 11.5 mg/dL (2.9 mmol/L), within ten days after denosumab (Xgeva) administration.

A total of 21 out of 33 patients (64%) had a response to denosumab (Xgeva) treatment within ten days.

Investigational Uses

- Denosumab is also marketed as Prolia and is indicated for the treatment of osteoporosis. Use of Xgeva for this indication is considered not medically necessary as dosage and frequency of administration differ between indications and products.

- The use of denosumab (Xgeva) for all other conditions is considered investigational.

Safety [7]

- Both bisphosphonates and denosumab (Xgeva) have labeled warnings for risk of osteonecrosis of the jaw (ONJ).

  * As noted in the NCCN prostate cancer and breast cancer guidelines, ONJ is seen with both denosumab (Xgeva) and bisphosphonates.

  * Poor baseline dental health or dental procedures during treatment are known risk factors for ONJ. Thus, patients should be referred for dental evaluation before starting either agent.

  * A position paper from the American Association or Oral and Maxillofacial Surgeons (AAOMS) states that the risk for ONJ among cancer patients exposed to denosumab (Xgeva) is comparable to the risk of ONJ in patients exposed to zoledronic acid. [12]

- Denosumab (Xgeva) can cause severe symptomatic hypocalcemia, and fatal events have occurred. All patients should be adequately supplemented with calcium and vitamin D when appropriate.
Appendix 1: Equation for determining the albumin-corrected calcium

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<th>Corrected Calcium Calculators:</th>
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<td><a href="http://www.globalrh.com/calcium.htm">http://www.globalrh.com/calcium.htm</a></td>
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<td><a href="http://www.uptodate.com/contents/calculator-calcium-correction-in-hypoalbuminemia">http://www.uptodate.com/contents/calculator-calcium-correction-in-hypoalbuminemia</a> (with subscription)</td>
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</table>

Corrected Calcium = Serum Ca + 0.8 * (Normal Albumin – Patient Albumin) \(^a,b\)


Cross References
Prolia, denosumab, BlueCross BlueShield Association Specialty Pharmacy Combined Capacity (SPCC) Report # 8, July 2010.
Prolia, denosumab, Medication Policy Manual, Policy No. dru223
Anabolic Bone Medications, Medication Policy Manual, Policy No, dru612

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<td>J0897</td>
<td>Injection, denosumab (Xgeva), 1 mg</td>
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<tr>
<td>HCPCS</td>
<td>J2430</td>
<td>Injection, pamidronate disodium, per 30 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3487</td>
<td>Injection, zoledronic acid (Zometa), 1 mg</td>
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<tr>
<td>HCPCS</td>
<td>J3488</td>
<td>Injection, zoledronic acid (Reclast), 1 mg (Reclast 5 MG/100ML SOLN)</td>
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References


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**Revision History**

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<td>10/15/2021</td>
<td>Updated COT. No criteria changes with this annual update.</td>
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<td>10/28/2020</td>
<td>Added COT criteria. No change to intent of policy.</td>
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<tr>
<td>10/23/2019</td>
<td>Clarification of policy language (no changes to criteria intent with this annual update)</td>
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<td>1/18/2018</td>
<td>Coverage criteria for prevention of skeletal-related events in multiple myeloma added.</td>
</tr>
<tr>
<td>3/10/2017</td>
<td>No criteria changes with this annual update</td>
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<tr>
<td>3/11/2016</td>
<td>No criteria changes with this annual update</td>
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</tbody>
</table>

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*Drug names identified in this policy are the trademarks of their respective owners*
**Medication Policy Manual**

**Policy No:** dru408

**Topic:** Site of Care Review

**Date of Origin:** July 10, 2015

**Committee Approval Date:** June 17, 2022

**Next Review Date:** December 2022

**Effective Date:** July 15, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

**Description**

This policy is to review the requested site of care (SOC) for provider-administered medications. Many medications historically infused in hospital-based infusion centers have been evaluated and determined to be safe for infusion outside of hospital-based settings. Use of non-hospital-based infusion centers and home infusion services is an accepted standard medical practice and sometimes referred to as an “alternate site of care.” These settings offer high-quality services for patients and reduce the overall cost of care, as compared to costly hospital-based infusion centers.

This policy applies to fully-insured commercial plans and exchange plans, and the Washington State Health Care Authority, with the exception of Uniform Medical Plan Plus. based in Washington, Oregon, Idaho, and Utah. This policy does **not** apply to Medicare plans or other self-insured groups [a.k.a. administrative services only (ASO)].
Policy/Criteria

I. Under most contracts, medications included in the infusion drug site of care program (see Appendix 1) may be considered medically necessary when individual medication policy criteria are met AND one of the following criteria (A or B) below are met:

A. The medication is administered in an approved site of care. (No formal “Site of Care” review is required)

OR

B. The medication is administered in an unapproved site of care (see Appendix 2), such as an unapproved hospital-based infusion center, when at least one of the criterion below (1, 2, or 3) are met:

NOTE: Site of care review criteria will be waived for payment of the initial dose(s) of a medication given during the first 30 days (starting from the date of the first dose) after the medication has been approved for pre-authorization, to allow for adequate transition time to an approved site of care for subsequent doses.

1. An approved site of care is not accessible to the member, as documented by criteria a AND b being met:
   a. The provider is not aware of an approved site of care that can administer the drug. Approved sites of care include, but are not limited to provider’s offices or ambulatory infusion sites.
   
   AND
   
   b. The member’s home is not eligible for home infusion services for reasons including, but not limited to: the home is not within the service area of the home infusion provider or is deemed unsuitable for care by the home infusion provider, unless the medication is not eligible for home infusion services (see Appendix 1).

OR

2. Clinical documentation of at least one long-term medical reason (specifically, medical conditions that will not change) why an approved site of care is not an option, including, but not limited to:
   a. Significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as severe needle phobia.
   
   b. Prior severe infusion reactions, despite standard pre-medications.
   
   c. Presence of circulating antibodies which may increase risk of infusion reactions.
   
   d. Documented difficult IV access.
   
   e. Treatment of Kawasaki disease.

OR
3. Clinical documentation of at least one **short-term medical reason** (specifically, medical conditions/rationale that will change with time) why an approved site of care is not an option, including, but not limited to:
   a. The member less than 14 years of age.
   b. Treatment within 100 days after hematopoietic stem cell transplantation (HSCT, a.k.a. bone marrow transplant).
   c. Concurrent treatment with medications that require a higher level of monitoring (such as CAR T-cell therapy, intravenous cytotoxic chemotherapy, or blood products).
   d. Treatment of antibody-mediated rejection (a.k.a. vascular rejection, acute humoral rejection) following a solid organ transplant.
   e. Acute treatment of vision changes (or high-risk of, based on disease stated).

II. Limitations and Authorization Period.

A. For exceptions approved under criterion I.B.1. above (**exceeds distance rule and no home infusion option**), authorization **shall** be reviewed at least annually to confirm that current medical necessity criteria are met, including that an approved site of care is still not a treatment option.

B. For exceptions approved under criterion I.B.2. above (**long-term medical reason**), authorization **may** be reviewed at least annually to confirm that current medical necessity criteria are met, including that an approved site of care is still not a treatment option.

C. For exceptions approved under criterion I.B.3. above (**short-term medical reason**), authorization will be as follows:

<table>
<thead>
<tr>
<th>Medical reason</th>
<th>Authorization Period</th>
<th>Reauthorization of the SOC exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member is less than 14 years of age.</td>
<td>Until date member turns 14 years of age</td>
<td>None. Any request after the 14th birthday will be subject to a new, full Site of Care Exception review.</td>
</tr>
<tr>
<td>Treatment within 100 days after HSCT</td>
<td>100 days, based on the date of HSCT</td>
<td>None. Any extension will be subject to a new, full Site of Care Exception review, based on the criteria listed in I.B.2.</td>
</tr>
<tr>
<td>Concurrent treatment with medications that require a higher level of monitoring</td>
<td>6 months</td>
<td>Authorization <strong>shall</strong> be reviewed at least every 6 months to confirm that current medical necessity criteria are met, including that an approved site of care is still not a treatment option.</td>
</tr>
<tr>
<td>Treatment of antibody-mediated rejection</td>
<td>6 months</td>
<td>None. Any additional treatment course will be subject to a new, full Site of Care Exception review.</td>
</tr>
<tr>
<td>Acute treatment of vision changes</td>
<td>3 months</td>
<td>None. Any additional treatment course will be subject to a new, full Site of Care Exception review.</td>
</tr>
<tr>
<td>Other short-term medical reason</td>
<td>3 months</td>
<td>Authorization <strong>shall</strong> be reviewed at least every 3 months to confirm that current medical necessity criteria are met, including that an approved site of care is still not a treatment option.</td>
</tr>
</tbody>
</table>
III. The medications in the infusion drug site of care program are considered not medically necessary if administered in an unapproved site of care, such as an unapproved hospital-based infusion center, when an approved site of care (e.g., physical sites or home infusion) is a treatment option.

Position Statement

- New technologies and pharmaceuticals allow therapeutic services, such as infusion therapy, to be administered safely, effectively, and much less costly outside of hospital-based infusion centers (a.k.a. hospital outpatient settings). Sites of care such as doctor’s offices, infusion centers, home infusion, and approved hospital-based infusion centers are well-established, accepted by physicians, and provide the best value to patients to reduce the overall cost of care.

- A site of care exception for an infusion at an unapproved site of care location must be requested by the provider and reviewed by the health plan prior to administration of the infused medication, per the terms of the member contract with the health plan.

Site of Care Review:

- Use of non-hospital-based infusion centers and home infusion services is an accepted standard medical practice. These sites offer high-quality services for patients and reduce the overall cost of care, as compared to costly hospital-based infusion centers. [1-8]

- All medications infused outside of a hospital setting have undergone an evaluation for safe infusion and development of infusion standards, including adverse drug reaction management and reporting algorithms.

- At all sites of care, every patient undergoes an assessment during the intake process by the infusion provider, which includes evaluation of individual clinical assessment parameters. These parameters may include, but are not limited to, previous tolerance of products (such as IVIG), assessment of kidney function, risk factors for developing thromboembolic events, and venous access. [9-10]

- For use of home infusion services, an assessment is conducted to determine if the home is a safe, appropriate site of care, with adequate support for infusion in the home.

- Because providers need time to arrange for assessment and coordination of care, the first dose of provider-administered medications may be covered in a hospital-based infusion center, if needed, to allow adequate time for a seamless transition of care. This may include arranging for delivery of medications, appointment scheduling, and/or patient education, such as for self-administration of medications such as subcutaneous immune globulin (SCIG).

- Claims submitted for infusion services performed at an unapproved site of care, such as an unapproved hospital-based infusion center (such as on-campus or off-campus hospital outpatient settings, denoted by place of service codes 22 or 19; see Appendix 3), are considered not medically necessary when an approved site of care is a treatment option or when preauthorization for the unapproved site of care had not been requested for
review. This is waived for claims given during the first 30 days (starting from the date of the first dose) after the medication has been approved for pre-authorization, to allow for adequate transition time to an approved site of care for subsequent doses.

- Pediatric patients often differ from adult patients in physiology, development, and cognitive and emotional function. They may also require doses, infusion rates, and equipment that vary and differ compared to adult patients. Special infusion training and expertise is needed. Therefore, this policy allows for patients under 14 years to obtain infusion services in approved sites of care or unapproved sites of care, such as unapproved hospital-based infusion centers.

- Clinical criteria considered for site of care exception review, aside from young age, include long-term and short-term medical reasons. Long-term medical reasons are not expected to change with time, such as behavioral issues or infusion reactions. Short-term medical reasons for a site of care exception would change over time; therefore, short-term medical reason requests would be re-reviewed as outlined by the authorization periods defined above in Section II.C.

Appendix 1: Medications Included in the Infusion Drug Site of Care Program

<table>
<thead>
<tr>
<th>Medication</th>
<th>Effective Date</th>
<th>Policy Number</th>
<th>Home infusion eligible</th>
<th>HCPCS Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actemra, tocilizumab a</td>
<td>3/1/2015</td>
<td>dru444, dru900 (UMP)</td>
<td>Yes</td>
<td>J3262</td>
</tr>
<tr>
<td>Adakveo, crizanlizumab-tmca</td>
<td>5/15/2020</td>
<td>dru628</td>
<td>Yes</td>
<td>J0791</td>
</tr>
<tr>
<td>Aldurazyme, laronidase</td>
<td>4/1/2016</td>
<td>dru426</td>
<td>Yes</td>
<td>J1931</td>
</tr>
<tr>
<td>Asceniv, immune globulin</td>
<td>10/1/2019</td>
<td>dru020</td>
<td>Yes</td>
<td>J1554</td>
</tr>
<tr>
<td>Avsola, infliximab-axxq</td>
<td>1/1/2021</td>
<td>dru620</td>
<td>Yes</td>
<td>Q5121</td>
</tr>
<tr>
<td>Bivigam, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1556</td>
</tr>
<tr>
<td>Caramune NF, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1566</td>
</tr>
<tr>
<td>Cerezyme, imiglucerase</td>
<td>4/1/2017</td>
<td>dru649</td>
<td>Yes</td>
<td>J1786</td>
</tr>
<tr>
<td>Cimzia, certolizumab pegol a</td>
<td>1/1/2017</td>
<td>dru444, dru900 (UMP)</td>
<td>Yes</td>
<td>J0717</td>
</tr>
<tr>
<td>Cinquaq, reslizumab</td>
<td>1/1/2022</td>
<td>dru538</td>
<td>Yes</td>
<td>J2786</td>
</tr>
<tr>
<td>Crysvita, burosumab-twza</td>
<td>11/1/2019</td>
<td>dru547</td>
<td>Yes</td>
<td>J0584</td>
</tr>
<tr>
<td>Cutaquig, immune globulin</td>
<td>10/1/2019</td>
<td>dru020</td>
<td>Yes</td>
<td>No code</td>
</tr>
<tr>
<td>Cuvitru, immune globulin</td>
<td>9/15/2016</td>
<td>dru020</td>
<td>Yes</td>
<td>J1555</td>
</tr>
<tr>
<td>Elaprase, idursulfase</td>
<td>4/1/2016</td>
<td>dru426</td>
<td>Yes</td>
<td>J1743</td>
</tr>
<tr>
<td>Elelyso, taliglucerase alfa</td>
<td>9/1/2018</td>
<td>dru649</td>
<td>Yes</td>
<td>J3060</td>
</tr>
<tr>
<td>Entyvio, vedolizumab</td>
<td>7/10/2015</td>
<td>dru444, dru900 (UMP)</td>
<td>Yes</td>
<td>J3380</td>
</tr>
<tr>
<td>Evenity, romosozumab-aqqg</td>
<td>10/1/2019</td>
<td>dru612</td>
<td>Yes</td>
<td>J3111</td>
</tr>
<tr>
<td>Fabrazyme, agalsidase beta</td>
<td>7/1/2015</td>
<td>dru575</td>
<td>Yes</td>
<td>J0180</td>
</tr>
<tr>
<td>Fasenra, benralizumab a</td>
<td>1/1/2022</td>
<td>dru538</td>
<td>Yes</td>
<td>J0517</td>
</tr>
<tr>
<td>Medication</td>
<td>Effective Date</td>
<td>Policy Number</td>
<td>Home infusion eligible</td>
<td>HCPCS Code</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Flebogamma, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1572</td>
</tr>
<tr>
<td>Gammagard, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1569</td>
</tr>
<tr>
<td>Gammagard S/D, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1566</td>
</tr>
<tr>
<td>Gammaked, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1561</td>
</tr>
<tr>
<td>Gammaplex, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1557</td>
</tr>
<tr>
<td>Gamunex/Gamunex-C, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1561</td>
</tr>
<tr>
<td>Hizentra, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1559</td>
</tr>
<tr>
<td>Hyqvia, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1575</td>
</tr>
<tr>
<td>Immune globulin (IVIG, SCIG)</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1459, J1555, J1556, J1557, J1559, J1561, J1566, J1568, J1569, J1572, J1575, J1599</td>
</tr>
<tr>
<td>Inflectra, infliximab-dyyb</td>
<td>1/1/2017</td>
<td>dru620</td>
<td>Yes</td>
<td>Q5103</td>
</tr>
<tr>
<td>Ixifi, infliximab-qbtx</td>
<td>10/1/2018</td>
<td>dru620</td>
<td>Yes</td>
<td>Q5109</td>
</tr>
<tr>
<td>Kanuma, sebelipase alfa</td>
<td>6/10/2016</td>
<td>dru426</td>
<td>Yes</td>
<td>J2840</td>
</tr>
<tr>
<td>Leqvio, inclisiran</td>
<td>6/1/2018</td>
<td>dru620</td>
<td>Yes</td>
<td>No code</td>
</tr>
<tr>
<td>Lumizyme, alglucosidase alfa</td>
<td>7/1/2015</td>
<td>dru426</td>
<td>Yes</td>
<td>J0221</td>
</tr>
<tr>
<td>Naglazyme, galsulfase</td>
<td>4/1/2016</td>
<td>dru426</td>
<td>Yes</td>
<td>J1458</td>
</tr>
<tr>
<td>Nexviyazyme, alglucosidase alfa- ngpt</td>
<td>1/1/22</td>
<td>dru426</td>
<td>Yes</td>
<td>J0219</td>
</tr>
<tr>
<td>Nucala, mepolizumab a</td>
<td>1/1/2022</td>
<td>dru538</td>
<td>Yes</td>
<td>J2182</td>
</tr>
<tr>
<td>Ocrevus, ocrelizumab</td>
<td>9/1/2018</td>
<td>dru479, dru902 (UMP)</td>
<td>Yes</td>
<td>J2350</td>
</tr>
<tr>
<td>Octagam, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1568</td>
</tr>
<tr>
<td>Onpattro, patisiran</td>
<td>4/1/2019</td>
<td>dru577</td>
<td>Yes</td>
<td>J0222</td>
</tr>
<tr>
<td>Orenica, abatacept a</td>
<td>3/1/2015</td>
<td>dru444, dru900 (UMP)</td>
<td>Yes</td>
<td>J0129</td>
</tr>
<tr>
<td>Panzyga, immune globulin</td>
<td>9/1/2018</td>
<td>dru020</td>
<td>Yes</td>
<td>No code</td>
</tr>
<tr>
<td>Privigen, immune globulin</td>
<td>3/1/2015</td>
<td>dru020</td>
<td>Yes</td>
<td>J1459</td>
</tr>
<tr>
<td>Radicava IV, edaravone</td>
<td>8/11/2017</td>
<td>dru510</td>
<td>Yes</td>
<td>J1301</td>
</tr>
<tr>
<td>Reblozyl, luspatercept</td>
<td>5/15/2020</td>
<td>dru631</td>
<td>Yes</td>
<td>J0896</td>
</tr>
<tr>
<td>Remicade, infliximab</td>
<td>3/1/2015</td>
<td>dru620</td>
<td>Yes</td>
<td>J1745</td>
</tr>
<tr>
<td>Renflexis, infliximab-abda</td>
<td>8/11/2017</td>
<td>dru620</td>
<td>Yes</td>
<td>Q5104</td>
</tr>
<tr>
<td>Revcovi, elapegademase-lvrl</td>
<td>7/1/2019</td>
<td>dru426</td>
<td>Yes</td>
<td>No code</td>
</tr>
<tr>
<td>Saphnelo, anifrolumab-fnia</td>
<td>1/1/2022</td>
<td>dru688</td>
<td>Yes</td>
<td>J0491</td>
</tr>
<tr>
<td>Simponi Aria, golimumab a</td>
<td>3/1/2015</td>
<td>dru444, dru900 (UMP)</td>
<td>Yes</td>
<td>J1602</td>
</tr>
<tr>
<td>Soliris, eculizumab</td>
<td>5/1/2015</td>
<td>dru385</td>
<td>Yes</td>
<td>J1300</td>
</tr>
</tbody>
</table>
## Appendix 2: Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
</table>
| Approved site of care | Location where medications are safely and effectively administered by a health care professional. Approved sites of care include:  
• Doctor’s offices  
• Standalone ambulatory infusion centers  
• Home infusion  
• Approved hospital-based infusion centers |
| Unapproved site of care | Location where medications are administered by a professional and the facility is reimbursed for the medication and services at a much higher rate than approved sites of care. Unapproved sites of care include:  
• Unapproved hospital-based infusion centers (denoted by place of service codes 22 or 19; see Appendix 3) |
## Appendix 3: Place of Service Codes and Descriptions

<table>
<thead>
<tr>
<th>Place of Service Code</th>
<th>Place of Service Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Office</td>
<td>Location, other than a hospital, skilled nursing facility (SNF), military treatment facility, community health center, State or local public health clinic, or intermediate care facility (ICF), where the health professional routinely provides health examinations, diagnosis, and treatment of illness or injury on an ambulatory basis.</td>
</tr>
<tr>
<td>12</td>
<td>Home</td>
<td>Location, other than a hospital or other facility, where the patient receives care in a private residence.</td>
</tr>
<tr>
<td>19</td>
<td>Off Campus-Outpatient Hospital</td>
<td>A portion of an off-campus hospital provider-based department which provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation services to sick or injured persons who do not require hospitalization or institutionalization.</td>
</tr>
<tr>
<td>22</td>
<td>On Campus-Outpatient Hospital</td>
<td>A portion of a hospital’s main campus which provides diagnostic, therapeutic (both surgical and nonsurgical), and rehabilitation services to sick or injured persons who do not require hospitalization or institutionalization.</td>
</tr>
</tbody>
</table>

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months. These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.
References

## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 6/17/2022     | • Added Vyvgart (efgartigimod) to policy effective 7/15/2022.  
                • Updated HCPCS and policy numbers in Appendix 1. |
| 3/18/2022     | Added Leqvio (inclisiran) to policy (effective 6/1/2022). |
| 10/15/2021    | • Added Xolair, Vyepi, Cinqair, Nucala, Fasenra, and Saphnelo to policy effective 1/1/2022.  
                • Clarified policy criteria. No changes to intent of criteria.  
                • Updated dru policy numbers as needed.  
                • Updated HCPCS code for Adakveo.  
                • Added UMP policy numbers |
| 7/16/2021     | Effective 8/15/2021  
                • Updated the lines of business impacted by this program.  
                • Updated access requirements for administration at non-approved sites of care (Criteria B.1.).  
                • Removed pegademase bovine (Adagen), alglucosidase alfa (Myozyme), denosumab (Prolia), and natalizumab (Tysabri) from program. |
| 10/28/2020    | • Added infliximab-axxq (Avsola) and inebilizumab (Uplizna) to policy (effective 1/1/2021).  
                • Clarified policy criteria. No changes to intent of criteria.  
                • Updated dru policy numbers as needed. |
| 7/22/2020     | • Removed ibalizumab-uiyk (Trogarzo) from policy (effective 8/15/20).  
                • Trogarzo policy to be archived effective 8/15/2020. |
| 6/1/2020      | • Updated Appendix 1 with correct effective dates and HCPCS codes. |
| 4/22/2020     | • Added Adakveo (crizanlizumab), Reblozyl (luspatercept), and Tepezza (teprotumumab-trbw) to the policy. |
| 1/22/2020     | • Clarified situations where no SOC review is needed.  
                • Added medical exception criteria for acute treatment of vision-threatening disease.  
                • Updated exception authorization periods. |
| 7/24/2019     | Added Crysvita (burosumab) and Evenity (romosozumab) to the policy. |
| 4/25/2019     | Added Revcovi (elapegademase) and Ultomiris (ravulizumab) to the policy. |
| 1/31/2019     | • Added Onpattro (patisiran) to the policy, effective 4/1/2019.  
                • Updated Appendix 1 HCPCS codes. |
| 8/17/2018     | No criteria changes on this annual review. |
| 6/15/2018     | • Clarify home infusion criteria I.B.1.b only applies to medications eligible for home infusion.  
                • Updated Appendix 1, to include home infusion eligibility. |
<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 5/18/2018     | • No change to intent of coverage criteria. Clarification of description, policy language, and addition of applicable J-codes. Defined approved and unapproved sites of care.  
• Added the following medications to the policy:  
  o Effective 6/1/2018: Trogarzo (ibalizumab-uiyk)  
  o Effective 9/1/2018: Elelyso (taliglucerase alfa), Ocrevus (ocrelizumab)  
  o Effective 10/1/2018: Ixifi (infliximab-qbtx)  
• Clarified medical exception criteria for concurrent cancer immunotherapy, including CAR T-cell therapy, and age less than 13 years old. |
| 8/11/2017     | Updated Appendix 1. |
| 1/17/2017     | Removed Lemtrada and Exondys from site of care program |
| 12/16/2016    | Updated Appendix 1. |
| 9/23/2016     | Updated Appendix 1. |
| 9/9/2016      | Select Utah plans are now included in the site of care review. |
| 7/15/2016     | Updated formatting of policy, added additional medical rationale for potential waivers to policy, noted distinction between approved and unapproved hospital outpatient settings, clarified affected members, and updated references. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru426

Topic: Enzyme Replacement Therapies:

- alglucosidase alfa (Lumizyme)
- avalglucosidase alfa (Nexviazyme)
- carglumic acid (generic, Carbaglu)
- elosulfase alfa (Vimizim)
- elapegademase (Revcovi)
- galsulfase (Naglazyme)
- idursulfase (Elaprase)
- laronidase (Aldurazyme)
- nitisinone (generic, Orfadin, Nityr)
- plasminogen (Ryplazim)
- sacrosidase (Sucraid)
- sebelipase alfa (Kanuma)
- vestronidase alfa (Mepsevii)

Committee Approval Date: June 17, 2022
Date of Origin: November 13, 2015
Effective Date: September 1, 2022
Next Review Date: June 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

The medications included in this policy are used to treat rare genetic conditions caused by the deficiency of a specific enzyme. The enzyme deficiencies result in metabolic disorders, which can be fatal if left untreated. The prevalence of these diseases is rare, with many of them affecting less than one in forty thousand people.
Policy/Criteria

Most contracts require pre-authorization approval of enzyme replacement therapies (ERT) prior to coverage.

I. **Continuation of therapy (COT):** ERT (as listed in Table 1) may be considered medically necessary for COT when full policy criteria below are met, including diagnostic criteria (at baseline), quantity limit, and reauthorization criteria.

II. **New starts (Treatment-naïve) patients:** Enzyme replacement therapies (ERT) (as listed in Table 1) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

A. There is documentation that confirms the medication is being used for its FDA-approved indication (as detailed in Table 1).

**AND**

B. The diagnosis has been established by or in conjunction with a specialist AND diagnostic criteria are met (as detailed in Table 1).

**AND**

C. Step therapy (if applicable for the ERT, as detailed in Table 1) has been ineffective, contraindicated, or not tolerated.

**AND**

D. For the provider-administered ERT medications only (as applicable): site of care administration requirements are met [refer to Medication Policy Manual, Site of Care (SOC) Review, dru408].

**Note:** Not all medications in this policy are part of the SOC program. Verify with the posted SOC policy, dru408
<table>
<thead>
<tr>
<th>Drug</th>
<th>Criteria II.A. FDA-approved Indication(s)</th>
<th>Criteria II.B. Specialist, Diagnostic Requirements</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Injectable, Provider-administered</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alglucosidase alfa (Lumizyme)</td>
<td>Pompe disease [acid α-glucosidase (GAA) deficiency]</td>
<td>Cardiology, medical genetics, or metabolic specialist AND genetic and/or enzymatic confirmation (GAA deficiency)</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Avalglucosidase alfa-ngpt (Nexviazyme)</td>
<td>Late-onset Pompe disease (LOPD; GAA deficiency) in patients 1 year of age and older</td>
<td>Cardiology, medical genetics, or metabolic specialist AND genetic and/or enzymatic confirmation (GAA deficiency) AND (in patients less than 30 kg ONLY): treatment with alglucosidase (Lumizyme) has been ineffective, contraindicated, or not tolerated.</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Elapegademase (Revcovi)</td>
<td>Adenosine deaminase severe combined immune deficiency (ADA-SCID)</td>
<td>Immunology or medical genetics AND genetic confirmation of ADA-SCID</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Elosulfase alfa (Vimizim)</td>
<td>Mucopolysaccharidosis (MPS) type IVA (Morquio A syndrome)</td>
<td>Medical genetics or metabolic specialist AND genetic and/or enzymatic confirmation (GALNS deficiency)</td>
<td>IM, Provider</td>
</tr>
<tr>
<td>Galsulfase (Naglazyme)</td>
<td>MPS VI (Maroteaux-Lamy syndrome)</td>
<td>Medical genetics or metabolic specialist AND genetic and/or enzymatic confirmation (ASB deficiency)</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Idursulfase (Elaprase)</td>
<td>MPS II (Hunter Syndrome)</td>
<td>Medical genetics or metabolic specialist AND genetic and/or enzymatic confirmation of MPS II (deficiency of I2S)</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Laronidase (Aldurazyme)</td>
<td>MPS I (Hurler, Scheie, and Hurler-Scheie forms)</td>
<td>Medical genetics or metabolic specialist AND genetic and/or enzymatic confirmation (alpha-L-iduronidase deficiency)</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Sebelipase alfa (Kanuma)</td>
<td>Lysosomal acid lipase (LAL) deficiency</td>
<td>Endocrinologist, metabolic specialist, or medical geneticist/genetic specialist AND enzymatic confirmation (low/absent LAL levels)</td>
<td>IV, Provider</td>
</tr>
<tr>
<td>Vestronidase</td>
<td>MPS VII (Sly syndrome)</td>
<td>Medical geneticist/genetic specialist AND enzymatic and/or</td>
<td>IV,</td>
</tr>
<tr>
<td>Drug</td>
<td>Criteria II.A. FDA-approved Indication(s)</td>
<td>Criteria II.B. Specialist, Diagnostic Requirements</td>
<td>Criteria II.C. Step Therapy Requirements</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>alfa (Mepsevii)</td>
<td>genetic confirmation of MPS VII</td>
<td>Provider</td>
<td>Provider</td>
</tr>
<tr>
<td>Injectable, Provider-administered = OR= Self-administered ERT</td>
<td></td>
<td></td>
<td>IV; Provider or self</td>
</tr>
<tr>
<td>Plasminogen, human-tvmb (Ryplazim)</td>
<td>Plasminogen deficiency (PLGD) type 1 (hypoplasminogenemia)</td>
<td>Dermatology, rheumatology, hematology, metabolic genetics, or metabolic specialist AND genetic confirmation of PLGD</td>
<td></td>
</tr>
<tr>
<td>Oral, Self-administered ERT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carglumic acid (generic, Carbaglu)</td>
<td>- Hyperammonemia due to N-acetylglutamate synthase (NAGS) deficiency, acute or chronic - Adjunctive therapy to standard of care for the treatment of acute hyperammonemia due to propionic acidemia (PA) or methylmalonic acidemia (MMA)</td>
<td>Medical genetics, or metabolic specialist AND (for NAGS only) genetic confirmation of NAGS AND (for Brand Carbaglu) Treatment with generic carglumic acid has been ineffective, contraindicated, or not tolerated.</td>
<td>Oral, self</td>
</tr>
<tr>
<td>Nitisinone (generic, Orfadin, Nityr)</td>
<td>Hereditary tyrosinemia type 1 (HT-1)</td>
<td>Medical genetics or metabolic specialist AND biochemical confirmation (presence of succinylacetone in the urine or plasma) AND treatment with generic nitisinone has been ineffective, contraindicated, or not tolerated (such as in patients unable to swallow generic capsules)</td>
<td>Oral, self</td>
</tr>
<tr>
<td>Sacrosidase (Sucraid)</td>
<td>Genetically determined congenital sucrose-isomaltase deficiency (CSID)</td>
<td>Gastroenterologist, endocrinologist, metabolic specialist, or medical genetics AND biochemical confirmation (low/absent sucrase activity on small bowel biopsy)</td>
<td>Oral, self</td>
</tr>
</tbody>
</table>
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers oral ERTs coverable only under the pharmacy benefit (as self-administered medications).

B. Regence Pharmacy Services considers injectable ERTs [as listed in Table 1, excepting plasminogen (Ryplazim)] coverable only under the medical benefit (as provider-administered medications).

C. Regence Pharmacy Services considers plasminogen (Ryplazim) coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication).

D. When pre-authorization is approved, the ERT will be authorized using the following dosing schedules in Table 2 below, using a current documented patient weight:

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Dosing schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provider Administered</strong></td>
<td></td>
</tr>
<tr>
<td>Alglucosidase alfa (Lumizyme)</td>
<td>Up to 26 IV infusions per year; ≤ 20 mg/kg every two weeks</td>
</tr>
</tbody>
</table>
| Avalglucosidase alfa (Nexviazyme) | **Patients weighing 30 kg or more:** Up to 26 IV infusions per year; ≤ 20 mg/kg every two weeks  
**Patients weighing less than 30 kg:** Up to 26 IV infusions per year; ≤ 40 mg/kg every two weeks |
| Elapegademase (Revcovi)        | Up to 104 intramuscular injections per year                                     |
| Elosulfase alfa (Vimizim)      | Up to 52 IV infusions per year; ≤ 2 mg/kg every week                            |
| Galsulfase (Naglazyme)         | Up to 52 IV infusions per year; ≤ 1 mg/kg every week                            |
| Idursulfase (Elaprase)         | Up to 52 IV infusions per year; ≤ 0.5 mg/kg every week                          |
| Laronidase (Aldurazyme)        | Up to 52 IV infusions per year; ≤ 0.58 mg/kg every week                         |
| Plasminogen (Ryplazim)         | Up to 162 IV infusions per year; 6.6 mg/kg every 2 to 4 days                   |
| Sebelipase alfa (Kanuma)       | **Patients presenting in the first 6 months of life:** Up to 52 IV infusions per year; 5 mg/kg every week  
**Adult and pediatric patients presenting after the first 6 months of life:** Up to 26 IV infusions per year, as follows  
- Initial dosing: up to 1 mg/kg every two weeks  
- For documented persistent symptoms (such as poor growth, liver/lipid abnormalities; See Clinical Efficacy section for details): up to 3 mg/kg every two weeks |
| Vestronidase alfa (Mepsevii)   | Up to 26 IV infusions per year; ≤ 4 mg/kg every two weeks                      |
### Table 2: ERT Quantity Limits (QL)

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Dosing schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral, self-administered</strong></td>
<td></td>
</tr>
<tr>
<td>Carglumic acid (generic, Carbaglu)</td>
<td><strong>Hyperammonemia due to NAGS Deficiency:</strong></td>
</tr>
<tr>
<td></td>
<td>- <strong>Acute:</strong> 100-250 mg/kg/day by mouth, for up to 30 days; adjust dose to maintain normal plasma ammonia levels. After 30 days, chronic QL applies.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Chronic:</strong> 10-100 mg/kg/day by mouth; adjust dose to maintain normal plasma ammonia.</td>
</tr>
<tr>
<td></td>
<td>- Authorization will be for up to 1 year</td>
</tr>
<tr>
<td></td>
<td><strong>Hyperammonemia due to PA or MMA – acute management</strong></td>
</tr>
<tr>
<td></td>
<td>- ≤15 kg: 150 mg/kg/day, for up to 7 days</td>
</tr>
<tr>
<td></td>
<td>- &gt;15 kg: 3.3 g/m²/day, for up to 7 days</td>
</tr>
<tr>
<td></td>
<td>- Coverable until ammonia level is less than 50 micromol/L, for up to a maximum duration of 7 days</td>
</tr>
<tr>
<td>Nitisinone (Orfadin, Nityr)</td>
<td>- <strong>Initial dosing:</strong> Up to 1 mg/kg/day, by mouth</td>
</tr>
<tr>
<td></td>
<td>- For persistent succinylacetone in serum and/or urine: Up to 2 mg/kg/day, by mouth</td>
</tr>
<tr>
<td></td>
<td>- Authorization will be for up to 1 year</td>
</tr>
<tr>
<td>Sacrosidase (Sucraid)</td>
<td>- ≤15 kg: 1mL per meal or snack, by mouth</td>
</tr>
<tr>
<td></td>
<td>- &gt;15 kg: 2mL per meal or snack, by mouth</td>
</tr>
<tr>
<td></td>
<td>- Authorization will be for up to 1 year</td>
</tr>
</tbody>
</table>

E. Authorization **shall** be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement, the patient is on the lowest effective dose, and a current weight, verified with clinical documentation such as a chart note from a clinic visit or a nurse infusion record. Criteria must be met for any dose escalation (as detailed in Table 2).

IV. The ERT included in this policy are considered investigational when used for any condition other than their FDA approved indications and when used in quantities greater than those listed above (in Table 2).
Position Statement

- The intent of this policy is to limit coverage of enzyme replacement therapies (ERTs, as listed in Table 1) in the diseases for and up to the doses for which they have been shown to be safe and effective in trials. The diagnosis for each product must have been established by a specialist in the given disease state.

- Only approximately half of the ERTs in this policy have safety and efficacy evidence from randomized, controlled trials to support use in their FDA approved indications (as detailed in the Clinical Efficacy below). The FDA approvals of the other ERTs were based on data from small, lower-quality, non-randomized trials. The medications included in this policy replace or replenish the deficient enzyme related to their respective FDA-approved indication and are the only pharmacologic treatment options available that treat the underlying cause of the disease.

- Drugs included in the policy are indicated for rare conditions for which a specialist is needed to confirm the diagnosis. Extensive diagnostic testing, including genetic testing or specialized laboratory testing, is required to confirm the diagnosis in most cases. In the absence of documented diagnostic testing, the associated therapies are not coverable.

- When lower cost options are available for a given disease, the higher cost ERT is coverable only when the lower cost ERT is not a treatment option.

  * In patients with late-onset Pompe disease who weigh 30 kg or less, alglucosidase (Lumizyme) provides the best value to members. In patients weighing less than 30 kg, avalglucosidase alfa (Nexviazyme) is dosed two times higher has a longer infusion time, and is significantly more costly than alglucosidase alfa (Lumizyme). Therefore, avalglucosidase alfa (Nexviazyme) is coverable only when alglucosidase alfa (Lumizyme) if not a treatment option.

  * Among the ERTs with generics, the branded formulations are coverable only when the less costly generic formulations are not an option. Current available generic formulations include generic carglumic acid and generic nitisinone.

- Guidelines for the use of ERTs for the treatment of these rare diseases (where available) generally align with the labeled use and coverage criteria, and may include use of other therapies, when feasible.

- Efficacy and safety of ERT doses exceeding the maximum dosage in the FDA-labeling have not been established in clinical trials.

- Efficacy and safety in other conditions (those not included in the FDA-labeling) have not been established in clinical trials.

- There is little potential for off-label use of these ERTs; however, the extremely high treatment costs, warrant confirmation of use for their FDA approved indications only.
Clinical Efficacy

Alglucosidase alfa (Lumizyme) and avalglucosidase alfa (Nexviazyme) for Pompe Disease

- Pompe disease is an inherited disease caused by the deficiency or lack of the enzyme acid alpha-glucosidase (GAA), which is essential for normal muscle development and function. Damage to muscle is irreversible and patients die of respiratory failure. There are two phenotypes of Pompe disease, based on endogenous enzyme activity: [1]
  * Infantile onset Pompe disease (IOPD): no, or very low endogenous enzyme activity, onset early in life, progresses rapidly. Cardiac symptoms predominate, followed by respiratory failure. IOPD is almost always fatal before 1 year of age.
  * Late onset Pompe disease (LOPD): at least a small amount of residual GAA activity (< 40% normal), onset later in life (> 12 mo), slower disease progression. Respiratory symptoms predominate, due to progressive muscle weakness leading to gait disturbances and eventually die from respiratory failure.

Alglucosidase alfa (Lumizyme) is indicated for patients with Pompe disease. It was previously marketed as Myozyme (alglucosidase alfa) by the same manufacturer. The two formulations differ in the bioreactor used for production but not in pharmacologic effect.

- Alglucosidase alfa (Lumizyme) has been shown to improve ventilator-free survival in patients with infantile-onset Pompe disease (IOPD), compared to an untreated historical control. Three open-label controlled studies evaluated alglucosidase alfa in 57 treatment naïve patients aged 0.2 months to 3.5 years with IOPD treated for 52-104 weeks. [2-3]
  * Primary outcomes assessed were death and need for invasive ventilator support.
  * All studies demonstrated a significant survival benefit compared to historical controls.
  * The precision of the study results is uncertain due to the absence of a control group in two of the studies, and the use of a historical control group in one of the studies.

- One high-quality systematic review of the available controlled trial evidence evaluated the use of alglucosidase alfa in patients with IOPD. Only one small randomized controlled trial (n=18) met inclusion criteria.[4]
  * The trial compared two dosing regimens (20 mg/kg every two weeks and the 40 mg/kg every two weeks) over 52 weeks, with a long-term extension to three years. There was no clear difference between the higher and lower doses for clinical outcomes of cardiac function, motor development, proportion of children free of invasive ventilation; however, long-term use of alglucosidase alfa was effective for IOPD, with improvement of ventilator-free and overall survival, as well as for cardiac dysfunction.
  * The review noted that there is a comparative lack of evidence to precisely conclude benefit of alglucosidase alfa (Lumizyme) for IOPD.
  * Of note, the pivotal trial for the FDA approval of alglucosidase alfa in IOPD was excluded from the systematic review, given the lack of comparator arm.

- One high-quality systematic review of 19 randomized and observational studies evaluated the use of alglucosidase alfa in a total of 438 patients with late-onset Pompe disease (LOPD). [5]
Outcomes of interest were mortality, percent predicted forced vital capacity (%FVC), the 6-min walk test (6MWT), and ventilator use.

The top four outcomes with the most data included reduction in mortality, increased motor performance as measured by the six-minute walk test, improved respiratory status as measured by forced vital capacity, and the reduction in need for ventilator support (n=66).

With alglucosidase alfa therapy:
- Mortality was lower (5-fold) [reported in most studies].
- Respiratory function did not deteriorate as rapidly. FVC initially increased, then fell to baseline. However, FVC was higher relative to the loss seen in untreated patients with LOPD [n=298 in 11 studies].
- 6MWT improved over the first 20 months, then stabilized over the following years, whereas 6MWT did not improve in untreated patients. [n=201 in 8 studies].
- Ambulation status and the need for ventilator support was reported in 12 and 13 studies, respectively. However, quantification of treatment effect is not reliable due to heterogeneity of the available data.

RCTs, extension trials, single-arm trials, and observation trials (prospective and retrospective) were included. Only one trial of the 19 included was a randomized controlled trial.

Similar to previous meta-analyses,[6] the studies included in the review were of low quality as study populations were small (n<90), most studies evaluated surrogate endpoints, and retrospective studies were included in the systematic review (case series, uncontrolled single-arm trials, observational studies, and statistical analyses) undermining the certainty in the evidence of clinical benefit.

Avalglucosidase alfa (Nexviazyme) is indicated for patients 1 year of age or older with late-onset Pompe disease (LOPD). [7]
- It is not indicated for infantile-onset Pompe disease (IOPD).
- Avalglucosidase alfa (Nexviazyme) was non-inferior to alglucosidase (Lumizyme) in patients with LOPD, based on one randomized controlled study (n=100). [7]
- Patients were randomized to avalglucosidase alfa (Nexviazyme) versus alglucosidase alfa (Lumizyme)
- All patients were 1 year of age or older.
- Results showed that avalglucosidase (Nexviazyme) was non-inferior for the primary endpoint of change in predicted forced vital capacity (FVC).

Dose escalation: There is interest in the use of higher doses of ERT in both early and late onset Pompe disease (IOPD, LOPD). However, there is insufficient evidence at this time to conclude additional benefit from higher doses of alglucosidase alfa (Lumizyme), in excess of 20 mg/kg every 2 weeks. The available evidence is limited to various case reports and retrospective analyses, as well as one exploratory trial. [8-10]
- An open label exploratory trial (2015) randomized 13 patients to standard versus escalated dose alglucosidase alfa (20 mg/kg/week or 40 mg/kg/2 weeks). [8] The authors concluded there may be some benefit of higher ERT dosing in some patients with motor decline. However, larger, controlled trials are needed to establish a superior efficacy, as well as risks, of higher doses of ERT in patients with Pompe disease.
- A 2020 retrospective review of patients with IPD (n=7) and LOPD (n=4) and dose escalation observed benefit from higher doses of alglucosidase alfa (Lumizyme) (40 mg/kg weekly). However, given the absence of a comparator arm and the retrospective, uncontrolled nature of the trial, conclusion of a relative benefit of higher dosing of alglucosidase alfa (Lumizyme) is not possible

- More recently (2022), a multicentre observational cohort study report various outcomes with a variety of alglucosidase alfa (Lumizyme) dosing strategies (39 dosing regimens in 124 patients). There was a non-statistically significant difference between standard dosage (20 mg/kg every other week), intermediate dosage (20 mg/kg per week, or higher 40 mg/kg every other week), and high dosage (40 mg/kg per week) for health outcomes, such as walking. Therefore, the use of alglucosidase alfa (Lumizyme) in doses of more than 20 mg/kg per week is considered investigational, with an unproven health outcome from higher dosing.

Guidelines: Based on the available evidence and consensus recommendations of specialists, guidelines for the treatment of late-onset Pompe disease recommend:

- Initiating treatment with ERT at the onset of symptoms and to re-evaluate annually to reassess whether treatment should continue.
- Newborn genetic screening is recommended, along with leukocyte GAA enzyme activity, to confirm a diagnosis of Pompe.

**Carglumic acid (generic, Carbaglu) for NAGS, PA, and MMA**

- Carglumic acid is indicated for the following diagnoses, to normalize ammonia levels:
  - Adjunctive therapy for the treatment of acute hyperammonemia due to the deficiency of hepatic enzyme N-acetylglutamate synthase (NAGS).
  - For maintenance therapy for the treatment of chronic hyperammonemia due to the deficiency of the hepatic enzyme NAGS.
  - Adjunctive therapy to standard of care for the acute treatment of hyperammonemia due to propionic acidemia (PA) or methylmalonic acidemia (MMA).

- FDA approval of carglumic acid for NAGS was based on a retrospective, unblinded, and uncontrolled review of patients with NAGS deficiency. Short-term impact on plasma ammonia levels was evaluated in 23 patients over three days, while long-term impact was evaluated in 13 patients over a mean length of 8 years (range 1 to 16 years).
  - After 3 days, mean ammonia levels dropped from 157 umol/L to 27 umol/L.
  - After a mean of 6 years, the mean ammonia level was 23 umol/L in 13 patients.
  - Acute hyperammonemia was controlled in all patients by Day 3. Therefore, higher doses of carglumic acid (up to 250 mg/kg/day) for acute hyperammonemia is coverable for a maximum of 30 days, after which time chronic dosing (up to 100 mg/kg/day) is coverable as maintenance therapy.

- Subsequently, approval for PA or MMA was based on a randomized, controlled trial in patients with genetically confirmed late-onset CPS1 deficiency (CPSD) and late-onset Ornithine transcarbamylase deficiency (OTCD), for acute hyperammonemia.
  - All patients received standard of care therapy, including a combination of protein restriction, intravenous glucose, insulin, and/or L-carnitine
* All patients had a baseline ammonia level of ≥ 70 mmol/L. carglumic acid was given until ammonia level was ≤ 50 mmol/L, or until hospital discharge, up to a maximum of 7 days.
* Addition of carglumic acid to standard treatment resulted in a more rapid normalization of plasma ammonia levels compared to placebo, administered for a maximum of seven days.

- NAGS, PA, and MMA are extremely rare conditions and evidence-based treatment guidelines are not available. However, genetic testing is required to definitively diagnosis NAGS, CPSD, and OTCD, an inherited autosomal recessive disorders. [13]

_Elapegademase (Revcovi) for ADA-SCID [14 15]_

- Elapegademase is indicated in patients with adenosine deaminase severe combined immunodeficiency (ADA-SCID). ADA-SCID is a rare, inherited condition caused by a lack of functional ADA, which results in severe T-lymphopenia.
- Efficacy was demonstrated in two small studies in a total of ten patients. The studies demonstrated that elapagademase is able to improve of serum adenosine deaminase activity and immune status while reducing the concentration of toxic metabolites. Improvements in these measures have been associated with long-term survival. [15]
- The diagnosis of ADA-SCID is confirmed by genetic testing (bi-allelic mutations in the ADA gene), to confirm ADA deficiency. Hematopoietic stem cell transplant (HSCT) is the definitive treatment for ADA-SCID. Guidelines for recommend ERT in patients who are not candidates for a bone marrow transplant or if gene therapy is not available (Note: gene therapy for ADA-SCID is not currently available in the US). [16]

_Nitisinone (Orfadin, Nityr) for HT-1_

- Nitisinone is indicated as an adjunct to dietary restriction of tyrosine and phenylalanine in the treatment of hereditary tyrosinemia type 1 (HT-1), an autosomal recessive genetic condition characterized by progressive liver disease and renal tubular dysfunction. [17 18]
- Nitisinone is available as a less costly generic, as a 2 mg, 5 mg, and 10 mg capsule, relative to the branded formulations of nitisinone (Orfadin, Nityr). Only branded nitisinone (Orfadin) is available as an oral suspension and is therefore coverable for patients unable to swallow generic capsules.
- Efficacy of nitisinone, in combination with dietary controls, was established in one open-label, uncontrolled study of 207 patients with HT-1, aged 0 to 21.7 years old. [18]
  * Efficacy was assessed by comparison of survival and incidence liver transplant relative to historical controls.
  * The median duration of treatment was 22 months.
  * For patients ≤ 2 years of age, the 2- and 4- year survival probabilities were 88%. Patients ≤ 2 years of age who had been treated with dietary restriction alone had 2- and 4- year survival probabilities of 29%.
  * For patients presenting between 2 and 6 years of age, 2- and 4-year survival probabilities were 94%. Patients between 2 and 6 years of age who had been treated with dietary restriction alone had 2- and 4-year survival probabilities of 74% and 60%, respectively.
Evidence-based treatment guidelines are not available for HT-1. However, based on standard of care as well as the available clinical trials of nitisinone: [18 19]

* HT-1 is diagnosed by presence of by the presence of succinylacetone in the urine or plasma. Genetic testing for the autosomal recessive trait is available, but not required for diagnosis of HT-1.

* Patients are typically managed through dietary restriction of protein. Nitisinone is considered the treatment of choice, as the only pharmacotherapy that can limit the formation of toxic compounds present in HT-1. Dosing is initiated at 1 mg/kg/day. The dose may be titrated based on biochemical and/or clinical response to a maximum of 2 mg/kg/day, such as based on serum and/or urine succinylacetone levels.

* Liver transplantation is considered an option for patients who do not respond to nitisinone.

**INVESTIGATIONAL USES:** One clinical trial evaluated the efficacy of nitisinone in alkaptonuria, an off-label use. While some clinical trials had shown that nitisinone was effective in reducing urinary homogentisic acid, a confirmatory randomized trial was conducted to evaluate clinical benefit in patients with alkaptonuria. At the end of the 36-month evaluation period, no benefit was observed in primary or secondary parameters. Measures of clinical efficacy included change in total range of motion in the worse hip, change in spinal flexion, 6-minute walk times, and functional reach. [20]

**Plasminogen (Ryplazim) for PLGD [21-23]**

- Plasminogen (Ryplazim) is indicated for the treatment of patients with plasminogen deficiency (PLGD) type 1.

- PLGD is characterized by the development of thick growths, or lesions, throughout the body that may be painful and can cause severe and potentially life-threatening complications. These lesions are caused by inflammation and the deposition of fibrin. Plasminogen (Ryplazim) acts as replacement plasminogen therapy, which allows for the clearance of fibrin.

- Approval of plasminogen was based on a single-arm, open-label phase 2/3 study in 15 patients with genetically-confirmed PLGD with biallelic mutations in the plasminogen (PLG) gene. Treatment with plasminogen normalized plasminogen levels and improved lesion size and severity.

- There is currently no screening test available for PLGD; molecular genetic testing can only confirm a diagnosis. Diagnosis relies on clinical symptoms, family medical history, and confirmatory testing.

**Sacrosidase (Sucraid) for CSID**

- Sacrosidase is indicated for the treatment of genetically determined sucrase deficiency, also known as congenital sucrose-isomaltase deficiency (CSID). [24]

- CSID is a rare, genetic condition which impairs ability to digest sugars (sucrose and maltose). Patients with CSID have GI symptoms (stomach cramping, excessive gas, bloating, explosive diarrhea, vomiting) after ingestion of sugar. In infants, CSID may lead to malnutrition and failure to thrive. [25]

- CSID is caused by a mutation in the SI gene. The diagnosis of CSID is confirmed with a small intestinal biopsy, to confirm a deficiency of sucrase activity.
Efficacy of sacrosidase was established in a randomized, double-blind, controlled trial consisting of two phases: 1) a comparative phase, evaluating placebo, sacrosidase, and sacrosidase plus milk and 2) a dose-response phase with various concentrations of sacrosidase. 28 patients aged 5 months to 11 years were enrolled. \cite{24-26}

* Criteria for inclusion were a history of chronic watery diarrhea with an acid pH, a small intestinal biopsy specimen with measurement of tissue disaccharidase levels showing sucrase activity of less than 10% of control specimens with normal lactase levels and normal or decreased maltase activity, normal villous architecture of the small intestine, and a normal result in a lactose breath hydrogen test.

* Breath hydrogen excretion decreased significantly in patients receiving sacrosidase, with or without milk.

* In the dose-response phase, higher concentrations of sacrosidase were associated with fewer stools and a greater number of formed or hard stools compared to baseline.

A prior study of similar design evaluated different concentrations of sacrosidase in the dose-response phase (n=14). \cite{24, 27}

* Diagnostic criteria for inclusion were similar (chronic watery diarrhea with an acid pH, a small intestinal biopsy specimen with measurement of tissue disaccharidase levels showing complete or near absence of sucrase activity, normal villous architecture of the small intestine, a normal lactose breath hydrogen test, and no other cause of chronic diarrhea).

* Although the effective on stool-related outcomes were inconsistent with the subsequent trial, this trial supported the other trial finding that breath hydrogen excretion decreased significantly with sacrosidase.

No treatment guidelines for CSID are available. However, a 2020 review of CSID diagnosis and management (sponsored by the manufacturer of Sucraid) affirmed that endoscopic small intestinal biopsy assayed for disaccharidase activity is the gold standard diagnostic to confirm a deficiency of sucrase activity, \cite{28} along with a retrospective review of physician diagnostic practice \cite{29} as well as the FDA Medical Review for Sucraid. \cite{25} Less-invasive tests, such as breath testing, sucrose challenge, and use of a ERT (Sucraid) trial, may support a diagnosis of CSID, but are not confirmatory for the diagnosis and are prone to error. \cite{30} Of note, the pivotal trials for the approval of sacrosidase (Sucraid) only enrolled patients with a history of chronic diarrhea and confirmation of CSID with intestinal biopsy. Therefore, the use of sacrosidase (Sucraid) in the absence of a biopsy-confirmed diagnosis of CSID is considered “not medically necessary.” Dietary restriction of sucrose, isomaltose, and maltose and enzyme replacement therapy with sacrosidase are the only available treatment options. Of note, negative genetic testing does not exclude the diagnosis of CSID. Therefore, genetic testing is not specifically recommended as standard of care.

**Sebelipase alfa (Kanuma) for lysosomal acid lipase (LAL) Deficiency**

- Sebelipase alfa is indicated for the treatment of LAL deficiency in infants, pediatric patients, and adults. \cite{31}

- Disease Background; \cite{32, 33}
* LAL catalyzes breakdown of cholesterol esters and triglycerides within lysosomes of cells. Deficiency of LAL results in accumulation of cholesterol esters and triglycerides in vital tissues and organs.

* The clinical severity depends on the severity of the LAL deficiency. Patients with little to no LAL activity typically present at 2 to 4 months and rarely survive to 12 months (median survival historically is ~ 1.3 months). Typical presentation is characterized by malabsorption, growth failure, and liver failure. Less severe LAL deficiencies present as a widely variable clinical course, with involvement of multiple organs, dyslipidemia, and liver disease as the most prominent feature. LAL deficiency may lead to hepatic steatosis, fibrosis, and progressive cirrhosis. Historically, patients were treated with HMG CoA-reductase inhibitors ("statins"). While improvements in serum lipids and hepatic steatosis have been shown, the effect on liver fibrosis or other clinical endpoints is not known.

Efficacy of sebelipase alfa in infants presenting within the first 6 months of life was established in an open label phase 2/3 trial comparing survival in nine patients vs. historical controls (LAL-CL03; VITAL). [32 33]

* Patients were treated with sebelipase alfa 0.35 mg/kg once weekly, with dose escalation to 1mg/kg. The trial protocol was later amended to allow escalation up to 5mg/kg, or every-other week infusions for stable patients. The initial FDA labeling allowed for up to 3 mg/kg once weekly.

* Six of nine patients in the study group survived to 12 months of age vs. zero of 21 historical controls.

A phase 3 study compared sebelipase alfa to placebo in pediatric and adult patients aged 4 to 58 years of age in a double-blind, placebo-controlled trial (LAL-CL02; ARISE). [34]

* Patients were randomized to sebelipase alfa 1 mg/kg every two weeks or placebo.

* The primary efficacy outcome was normalization of alanine amino transferase (ALT) levels. The FDA determined this endpoint was not clinically meaningful.

* FDA approval was based on the secondary endpoint of reduction in LDL cholesterol levels. No clinically meaningful benefit, such as clinically meaningful endpoints such as survival, QOL, or disease burden, has been demonstrated.

Long-term (5-year) survival data was published for three open-label extension trials, which allowed dose escalation in patients with a suboptimal clinical response. [35 36]

* In children with onset within the first 6 months of life:

  - The trial enrolled patients who completed the phase 2/3 LAL-CL03/VITAL and 10 from the phase 2 LAL-CL08. Doses of sebelipase alfa (Kanuma) were escalated up to 5 mg/kg once weekly “at the discretion of the investigator” (4 of 19 patients).

  - Dose escalation was considered within the first three months for failure to grow (weight and height), low albumin, persistent ALT elevation, and ongoing transfusions. Beyond three months, additional dose escalation could be considered for persistent poor growth, low albumin, persistent ALT elevation, hepatomegaly, splenomegaly, or lymphadenopathy.
* In pediatric and adult patients (CL04):
  - The trial enrolled patients who completed the phase 2 CL01 dose-
    escalation trial. Doses of sebelipase alfa (Kanuma) were escalated up to 3
    mg/kg every other week (3 of 9 patients).
  - A suboptimal clinical response was defined as any of the following that
    did not improve from baseline or failed to normalize within 12 months:
    poor growth, deteriorating biochemical markers (such as liver function
    tests, lipid profile, liver biopsy), or persistent or worsening organomegaly
    (such as liver fibrosis/cirrhosis, splenomegaly).

* The long-term extension trials found a survival benefit with use of sebelipase alfa
  (Kanuma). However, the number of patients on escalated doses was very small
  relative to the total treated patients, as well as the available phase 3 data.
  Therefore, the benefit of escalated dosing relative to lower dosing remains
  uncertain.

- No treatment guidelines for LAL deficiency are available. If the disease presents in the
  first year of life, it is rapidly fatal and there are no treatment alternatives. Disease that
  presents later in life has a varying clinical course. Sebelipase alfa is the only FDA-
  approved treatment. Documentation of LAL deficiency was required for sebelipase alfa
  trial entry and is considered diagnostic for LAL deficiency.

*Mucopolysaccharidoses - types I II, III (A to D), IV (A or B), VI, VII, and IX [1 37]*

- Mucopolysaccharidoses (MPS) are lysosomal storage disorders caused by the deficiency
  of enzymes required for the stepwise breakdown of glycosaminoglycans (GAGs).
  Fragments of partially degraded GAGs accumulate in the lysosomes, resulting in
  cellular dysfunction and clinical abnormalities.

- The MPS disorders are classified as types I II, III (A to D), IV (A or B), VI, VII, and IX.
  MPS V (formerly Scheie syndrome) and MPS VIII are no longer recognized. The MPS
  disorders are differentiated clinically by their clinical features and age of presentation
  and biochemically by their associated enzyme deficiency. They can be grouped into four
  broad categories according to their dominant clinical features:
  * Soft tissue storage and skeletal disease with or without brain disease (MPS I, II,
    VII)
  * Soft tissue and skeletal disease (MPS VI)
  * Primarily skeletal disorders (MPS IV A and B)
  * Primarily CNS disorders (MPS III A to D)

- MPS affects many other systems and other complications of the disease including
  recurrent hernias (due to hepatosplenomegaly), chronic ear infections, chronic
  respiratory infections, poor vision, poor hearing, communicating hydrocephalus, and
  sleep apnea. Growth height is also significantly less than normal. [58]

- Demonstration of a specific enzyme deficiency, usually in peripheral blood leukocytes,
  although fibroblasts or dried blood spots, is needed for confirmation of diagnosis.
  Enzyme analysis is available for all types of MPS.
FDA-approved ERT is available for: MPS I, II, IVa, VI, VII. ERT is generally used in patients with moderate to severe disease. ERT has only been shown to slow the progression of the disease.

_Elosulfase alfa (Vimizim) for MPS IVa_
- Elosulfase alfa is indicated for patients with Mucopolysaccharidosis type IV A (MPS IVa; also known as Morquio A syndrome). [39] This condition affects roughly 1 per 100,000 individuals. Patients lack the enzyme N-acetylgalactosamine-6-sulfatase (GALNS), which results in skeletal abnormalities. [37] Symptoms may also include visual, splenic, cardiac, and auditory.
- FDA approval was based on a randomized, double-blind, placebo-controlled, trial of 176 patients with MPS IVa, ranging from 5 to 57 in age. Patients received elosulfase alfa or placebo. [39 40]
  * The primary end point was the change from baseline in the distance walked in six minutes (six-minute walk test, 6-MWT) at week 24.
  * The mean difference in 6-MWT between elosulfase alfa and placebo was 23 meters (95% CI 2.9, 43.1).
  * No additional improvement was observed in a 48-week follow-up extension study.
- Guidelines recommend initiating ERT as soon as the diagnosis has been confirmed by an enzyme activity test (reduced GALNS). Genetic testing may be used for confirmation. [41]

_Galsulfase (Naglazyme) for MPS VI_
- Galsulfase is indicated for patients with Mucopolysaccharidosis VI (MPS VI; also known as Maroteaux-Lamy syndrome). This condition affects roughly 1 per 300,000 individuals.
- MPS VI is caused by mutation on the ARSB gene, which leads to a deficiency of the enzyme arylsulfatase B (ASB; N-acetylgalactosamine-4-sulfatase). The ASB deficiency results in skeletal deformities and respiratory difficulties, as well as cardiac abnormalities. [1 37 42]
- In a randomized, double-blind, placebo-controlled trial, 38 patients with MPS VI received galsulfase or placebo for 24 weeks. [43] Patients ranged in age from 5 to 29 years old.
  * The primary endpoint was the change from baseline in the distance walked in 12 minutes (12-minute walk test, 12-MWT).
  * Patients treated with galsulfase saw a greater difference in the 12-MWT than those treated with placebo (mean difference of 83 meters).
- Treatment guidelines recommend ERT with galsulfase as a first-line treatment option for patients with MPS VI, when the diagnosis has been confirmed by an enzyme activity test (reduced ASB). Genetic testing may be used for confirmation. [42]

_Idursulfase (Elaprase) for MPS II_
- Idursulfase is indicated for patients with Mucopolysaccharidosis II (MPS II; also known as Hunter Syndrome). This condition affects roughly 1 per 150,000 individuals. [44]
- MPS II is caused by a deficiency of iduronate 2-sulfatase (I2S), due to mutations in the I2S gene, which results in various symptoms (coarse facial features, severe skeletal disease, joint abnormalities, respiratory disease, and cardiac abnormalities, obstructive sleep apnea and pulmonary hypertension, vision and hearing disorders, and/or hydrocephalus).
- In a randomized, double-blind, placebo-controlled trial, 96 patients with MPS II received idursulfase or placebo for 53 weeks. Patients ranged in age from 5 to 31 years old. [45]
  * The primary endpoint was the change from baseline in the distance walked in 6 minutes (6-minute walk test, 6-MWT).
  * The mean difference in 6-MWT between idursulfase and placebo was 37 meters.
- Although evidence is limited in patients less than 5 years old, European guidelines recommend that ERT with idursulfase be initiated for any patient with a biochemically confirmed diagnosis of MPS II, including those younger than 5. [44]
- Treatment guidelines for Mucopolysaccharidoses II recommend idursulfase, as a first-line treatment options for patients with a confirmed diagnosis. Gold standard is documentation of iduronate 2-sulfatase (I2S) deficiency. Screening urinary glycosaminoglycans I diagnostic for MPS II with confirmation by measuring I2S activity and analyzing I2S gene mutations. [1 44 46]

**Laronidase (Aldurazyme) for MPS I**
- Laronidase is indicated for patients with Mucopolysaccharidosis I (MPS I), specifically for Hurler and Hurler-Scheie forms of the disease, and for patients with the Scheie form who have moderate to severe symptoms.[47] MPS I is due to a gene mutation which leads to a deficiency of alpha-l-iduronidase (IDUA). Clinical manifestations include respiratory and cardiovascular complications, skeletal manifestations, arthropathy, loss of hearing and vision, gastrointestinal symptoms, and hydrocephalus. This condition affects roughly 1 per 100,000 individuals. [48]
- Approval was based on a randomized, double-blind, placebo-controlled trial in 45 patients, aged 6 to 43 years old. [49]
  * One patient had the Hurler form, 37 the Hurler-Scheie form, and 7 the Scheie form. Patients received laronidase or placebo for 26 weeks.
  * The primary endpoints were percent predicted forced vital capacity (FVC) and the change from baseline in the distance walked in 6 minutes (6-minute walk test, 6-MWT).
  * Respiratory and physical improvements were achieved in patients receiving laronidase.
  * The mean difference in % of predicted normal FVC was 4 (p=0.02); the mean difference in 6-MWT was 39 meters (p=0.07), comparing laronidase to placebo.
  * The improvement in percent predicted FVC and 6-MWT was maintained after 182 weeks, as evaluated in an open-label in a long-term extension study.
- Treatment guidelines for MPS I highlight the significance of individualized treatment based on the clinical picture of each patient. Enzymatic analysis [alpha-l-iduronidase (IDUA) deficiency] is diagnostic; however, genetic analysis is required for confirmation of phenotype, which is predictive of disease severity. Considerations such as needs patient age, developmental quotient, disease phenotype, severity of disease, and potential for growth should be evaluated before pursuing a hematopoietic stem cell transplant or ERT. [1 48]
**Vestronidase alfa (Mepsevii) for MPS VII**

- Vestronidase alfa (Mepsevii), (recombinant human beta-glucuronidase [rhGUS]), is indicated for the treatment of MPS VII (Sly syndrome) in pediatric and adult patients. MPS VII is due to a gene mutation which leads to a deficiency of beta-glucuronidase. Patients with MPS VII experience significant development issues. Development slows by 1 to 3 years of age, which is then followed by a regression of skills until death. Approval for vestronidase alfa (Mepsevii) was based on one phase 3, randomized, placebo-controlled trial in twelve patients with a diagnosis of MPS VII, based on leukocyte or fibroblast glucuronidase enzyme assay or genetic testing, as well as the clinical history of patients who received treatment with vestronidase alfa (Mepsevii) in phase 1 trials and expanded access programs. While the body of evidence for vestronidase alfa (Mepsevii) is of low quality due to the rarity of the condition and the nature of the disease, patients experienced improvement in several parameters that suggest clinical efficacy of the drug.

- No treatment guidelines for MPS VII (Sly syndrome) are available. Vestronidase alfa (Mepsevii) is the only FDA-approved treatment. Diagnosis is confirmed with testing for enzyme levels (beta-glucuronidase deficiency).

**Safety**

- Alglucosidase alfa has boxed warnings for anaphylactic reactions during infusions, and in infantile-onset Pompe disease patients with compromised cardiac or respiratory function, a risk of serious acute exacerbations due to fluid overload. Patients should be observed closely during and after administration.

- Elosulfase alfa and laronidase each have a boxed warning for anaphylactic reactions during infusions. Pre-treatment with antihistamines and potentially antipyretics is recommended, but not required.

**Dosing**

- The safety and efficacy of doses higher doses than listed in Table 2 have not been established. Many of the FDA-approved label for injectable ERTs recommends rounding up the dose to the vial size for calculation of the number of vials needed for a given dose. However, all of the FDA-approved labels for injectable ERTs recommend to “discard any unused product,” which would mean to NOT administer the entire rounded vial.

**Cross References**

<table>
<thead>
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<tr>
<td>Fabry Disease Treatments, Medication Policy Manual, Policy No. dru575</td>
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<td>Site of Care Review, Medication Policy Manual, Policy No. dru408</td>
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<td>Strensiq, Asfotase alfa, Medication Policy Manual, Policy No. dru639</td>
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References


14. Revcovi (elapagademase-lvlr) [Prescribing Information]. Indianapolis, IN: Chiesi USA; December 2020.


## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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| 06/17/2022    | • Added generic carglumic acid to the policy.  
• Added criteria for confirmation of diagnosis for all ERTs, with biochemical, genetic, and/or enzymatic testing.  
• Added step therapy with generics (carglumic acid, nitisinone) prior to coverage of brands (Carbaglu, Orfadin, Nityr).  
• Updated Quantity limits (QL):  
  - Updated QL for sebelipase alfa (Kanuma).  
  - Clarified QL for oral ERTs, including acute versus chronic use of carglumic acid.  
• Clarified COT and reauthorization criteria to include review for use of the lowest effective dose. |
| 11/14/2021    | Added avalglucosidase alfa (Nexviazyme) to Site of Care. |
| 10/15/2021    | Added coverage criteria for plasminogen (Ryplazim) and avalglucosidase alfa (Nexviazyme). |
| 07/16/2021    | • Clarified that documentation of current weight is required for re-authorization.  
• Added quantity limits for the use of carglumic acid (Carbaglu) in patients with hyperammonemia due to propionic acidemia (PA) and methylmalonic acidemia (MMA), two newly FDA approved indications.  
• Removed mentions of pegademase bovine (Adagen) in main criteria, but left in policy backend as it still in appears in prescribing information for elapegademase (Revcovi). |
| 07/22/2020    | • Added continuation of therapy (COT) criteria.  
• Removed alglucosidase alfa (Myozyme) and pegademase bovine (Adagen) from the policy. Both products have been discontinued.  
• Removed asfotase (Strengsiq) from policy and created a new policy: dru639 Strengsiq, asfotase alfa.  
• Added new criteria stating that each product must be prescribed by or in conjunction with a specialist for its given disease state. |
<table>
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<tr>
<th>Date</th>
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<tr>
<td>7/24/2019</td>
<td>Removed agalsidase beta (Fabrazyme) from policy and added it to dru575 Fabry Disease. No change to intent of other coverage criteria. Clarification of policy language.</td>
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</table>
| 1/31/2019     | • Added elapegademase (Revcovi) to policy.  
• Clarified documentation requirements (no change to intent).                                                                                  |
| 11/16/2018    | No changes to criteria with this annual update                                                                                                                                                           |
| 3/19/2018     | Added vestronidase alfa (Mepsevii) to policy.                                                                                                                                                            |
| 1/19/2018     | Added Nityr, a new formulation of nitisinone, to policy.                                                                                                                                                |
| 11/11/2016    | Removed site of care language from the individual drug policy; however, requirements still apply. Reference to Site of Care Review, dru408 is provided as part of criterion IB.                             |
| 6/10/2016     | Added Kanuma to policy.                                                                                                                                                                                 |
| 2/12/2016     | Added Fabrazyme and Strensiq to policy.                                                                                                                                                                 |
| 11/13/2015    | New policy.                                                                                                                                                                                              |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Yondelis, trabectedin

Policy No: dru440

Date of Origin: January 8, 2016

Committee Approval Date: October 15, 2021

Next Review Date: December 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Trabectedin (Yondelis) is a cytotoxic chemotherapy medication used for the treatment of certain types of soft tissue sarcoma. Trabectedin (Yondelis) is given intravenously as a 24-hour infusion through a central line.
Policy/Criteria

Most contracts require pre-authorization approval of trabectedin (Yondelis) prior to coverage.

I. Continuation of therapy (COT): Trabectedin (Yondelis) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naive patients): Trabectedin (Yondelis) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, or C below is met.

A. A diagnosis of liposarcoma (LPS) when criteria 1 and 2 below are met:
   1. The LPS is unresectable or metastatic.
   AND
   2. At least one prior anthracycline-based chemotherapy regimen for LPS has been ineffective (see Appendix 1).
B. A diagnosis of leiomyosarcoma (LMS) when criteria 1 and 2 below are met:
   1. The LMS is unresectable or metastatic.
   AND
   2. At least one prior anthracycline-based chemotherapy regimen for LMS has been ineffective (see Appendix 1).

OR

C. A diagnosis of translocation-related sarcoma (TRS) including, but not limited to, synovial sarcoma when criteria 1 and 2 below are met:
   1. The TRS is unresectable or metastatic.
   AND
   2. At least one prior chemotherapy regimen for TRS has been ineffective.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers trabectedin (Yondelis) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, trabectedin (Yondelis) may be authorized for up to one 24-hour infusion every 21 days, until disease progression.

C. Authorization may be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Trabectedin (Yondelis) is considered not medically necessary when used for the treatment of ovarian cancer.

V. Trabectedin (Yondelis) is considered investigational when used for all other conditions, including, but not limited to, soft tissue sarcomas other than listed in Sections I to IV and uterine cancers other than listed in sections I to IV.

Position Statement

Summary

- Trabectedin (Yondelis) is a cytotoxic chemotherapy medication used in the treatment of unresectable or metastatic liposarcoma (LPS) or leiomyosarcoma (LMS), or translocation related sarcoma (TRS) after disease progresses on prior cytotoxic chemotherapy.

- The intent of this policy is to cover trabectedin (Yondelis) for the indications, regimen, and dose for which it has been studied, as detailed in the coverage criteria.

- It has not yet been determined if trabectedin (Yondelis) provides clinically meaningful benefit in any of the conditions in which it has been approved. Although trabectedin (Yondelis) demonstrated a progression-free survival (PFS) advantage over standard dose...
dacarbazine for LPS and LMS, there was no difference in overall survival between groups. Improvement in PFS, a surrogate endpoint, has not been shown to correlate with improvement in any clinically relevant outcome (e.g., symptom control or quality of life).

- **For LPS and LMS:** Standard front-line therapy for unresectable or metastatic soft tissue sarcoma (STS), including LPS and LMS, is anthracycline-based (e.g., doxorubicin) chemotherapy, given either as a single agent or in combination with other cytotoxic agents, because it has been shown to improve survival relative to non-anthracycline-based regimens.

- **For TRS:** Trabectedin (Yondelis) has also shown promise in translocation-related sarcomas, including synovial sarcoma. TRSs are rare forms of STS that typically affect younger populations, and for which there are very few treatment options. Patients with advanced disease whose disease has progressed on standard chemotherapy are potential candidates for trabectedin (Yondelis).

- **All** subjects in the trabectedin (Yondelis) clinical study had progression of disease on prior anthracycline-based chemotherapy. There is no evidence for trabectedin (Yondelis) when given after non-anthracycline-based regimens.

- Trabectedin (Yondelis) is a palliative therapy, meaning it is not given with curative intent. National treatment guidelines list trabectedin (Yondelis) among several other therapy options for the palliative treatment of metastatic STS. No one chemotherapy has been shown to be superior to another in this setting.

- Trabectedin (Yondelis) is administered as a 24-hour continuous infusion via a central line once every 21 days until progression of disease.

- Trabectedin (Yondelis) was evaluated in metastatic ovarian cancer as an add-on to liposomal doxorubicin; however, no difference in OS was demonstrated in the trial. Additionally, there is greater toxicity when these two agents are used together.

- Trabectedin (Yondelis) has been evaluated in small numbers of patients with other subtypes of STS; however, data is of extremely low-quality, so the benefit is unknown.

- There are no clinical trials that trabectedin (Yondelis) provides any benefit for patients with uterine cancers other than for leiomyosarcomas and liposarcomas; evidence is limited to scant case reports.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.**

**Clinical Efficacy [1,2]**

**Liposarcoma and leiomyosarcoma**

- The efficacy of trabectedin (Yondelis) is based on a single, published, phase 3 trial in patients with metastatic or recurrent liposarcoma or leiomyosarcoma. These are two of the most common forms of soft tissue sarcoma (STS).
- All patients in the trabectedin (Yondelis) clinical trial had prior cytotoxic chemotherapy, with the majority having received anthracycline-based regimens, the current front-line standard of care.

- The study evaluated trabectedin (Yondelis) as a monotherapy in a dose of 1.5 mg/m² intravenously as a 24-hour infusion given every 21 days until disease progression. Subjects in the comparator arm received a standard dose of dacarbazine as monotherapy.

- There was a 2.7-month advantage in progression-free survival (PFS) with trabectedin (Yondelis) versus dacarbazine; however, there was no difference in median overall survival (OS).

- It is not known if improved PFS correlates with improvements in other clinically relevant outcomes such as symptom control or quality of life.

- The median duration of response in the trabectedin (Yondelis) and dacarbazine treatment arms was 6.5 months and 4.2 months, respectively. This difference was not statistically significant.

- There is currently no evidence that trabectedin (Yondelis) is superior to dacarbazine or any other therapy used for the salvage treatment of liposarcoma or leiomyosarcoma with regard to any clinically relevant endpoint.

**Translocation-related sarcomas (TRSs)**

- Trabectedin (Yondelis) is also being evaluated in advanced translocation-related sarcomas (TRSs), including advanced synovial sarcomas. These rare forms of STS affect younger populations and have few effective treatment options.

  * A pooled analysis of small trials that included patients with different histological subtypes of TRS reported that trabectedin (Yondelis) had anti-tumor effects and prolonged disease control in patients with advanced disease who had a median of one prior therapy regimen. [3]

  * A second study evaluated trabectedin (Yondelis) in patients with metastatic synovial sarcoma who had been treated with prior chemotherapy. A tumor control rate (partial response or stable disease) of 50% was reported. [4]

**Guidelines**

- The National Comprehensive Cancer Network (NCCN) STS guideline lists trabectedin (Yondelis) as a therapy option as a palliative therapy for liposarcoma (LPS) and leiomyosarcoma (LMS). It is also listed as a therapy option for other subtypes of STS with non-specific histologies as well as for use in the neoadjuvant/adjuvant setting for myxoid liposarcoma. [5]

**Not Medically Necessary Uses**

- A phase 3 study evaluating trabectedin (Yondelis) plus pegylated liposomal doxorubicin (PLD) versus PLD alone demonstrated improved tumor response rates and progression-free survival (PFS) in the combination arm; however, there was no statistical difference in overall survival based on the mature data set. [6,7]
**Investigational Uses**

- The safety and effectiveness of trabectedin (Yondelis) in soft tissue sarcomas (STS) other than LPS or LMS have not been adequately assessed. Available studies are in early phases and contain mixed subtypes of STSs with small numbers of any given subtype. \[8\]
- Trabectedin (Yondelis) had no activity in patients with metastatic pancreatic cancer or triple-negative, HER2-overexpressing metastatic breast cancer based on small, preliminary studies. \[9,10\]
- The safety and effectiveness of trabectedin (Yondelis) in uterine cancer is limited to patients with leiomyosarcoma and liposarcoma histologies; safety and efficacy for use in other uterine cancer histologies have not been adequately assessed. There is no clinical trial evidence for use of trabectedin (Yondelis) in other histologies; data is limited to three case reports in recurrent/metastatic adenosarcoma. \[11\]

**Safety and Administration \[1,2\]**

- Serious adverse events (AEs) reported with trabectedin (Yondelis) include severe neutropenia, rhabdomyolysis, hepatotoxicity, and cardiomyopathy.
- Trabectedin (Yondelis) has only been directly compared with single-agent dacarbazine.
- The incidence of nearly all AEs was numerically higher for trabectedin (Yondelis) than for dacarbazine. Discontinuations due to AEs occurred in 12.6% and 7.7% in the trabectedin (Yondelis) and dacarbazine treatment arms, respectively.
- Trabectedin (Yondelis) is administered via a 24-hour continuous infusion. It must be administered via a central line because extravasation can cause tissue necrosis requiring tissue debridement.
- Premedication with dexamethasone is required prior to administration of trabectedin (Yondelis) to prevent or minimize infusion reactions.

### Appendix 1: Anthracycline medications

| daunorubicin (generics, Cerubidine) |
| doxorubicin (generics, Adriamycin) |
| doxorubicin, liposomal (Doxil, Lipodox) |
| epirubicin (generics, Ellence) |

### Cross References

Votrient, pazopanib, Medication Policy Manual, Policy No. dru199

### Codes

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<tr>
<td>HCPSC</td>
<td>J9352</td>
<td>Injection, trabectedin (Yondelis) 0.1 mg</td>
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References


### Revision History

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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| 10/15/2021    | - Continuation of therapy (COT) language updated for standardization.  
                - No coverage criteria changes with this annual update. |
| 10/28/2020    | - Continuation of therapy (COT) language added.  
                - Updated investigational indications to explicitly call out uterine cancers other than what is covered in criteria but no change to intent.  
                - No coverage criteria changes with this annual update. |
| 10/23/2019    | No coverage criteria changes with this annual update. |
| 10/19/2018    | - Updated policy with standard language, including clarifying the Authorization Period to state 'until disease progression' (no change to policy intent)  
                - Added coverage for TRS (few other options) |
| 1/13/2017     | - No coverage criteria changes.  
                - Updated references for package labeling and NCCN guideline, and added documentation for two additional populations where trabectedin was not found to have activity. |
| 1/8/2016      | New policy |

*Drug names identified in this policy are the trademarks of their respective owners*
**Medication Policy Manual**

**Policy No:** dru443  
**Topic:** Onivyde, irinotecan liposome injection  
**Date of Origin:** January 8, 2016  
**Committee Approval Date:** January 20, 2021  
**Effective Date:** April 1, 2021  
**Next Review Date:** January 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Liposomal irinotecan (Onivyde) is an intravenous formulation of generic irinotecan HCL. It is a nanoliposomal encapsulation of irinotecan HCL molecules. Liposomal irinotecan (Onivyde) is indicated for patients with metastatic pancreatic cancer who have progressed on prior gemcitabine-based chemotherapy. It is given in combination with fluorouracil and leucovorin.

**PLEASE NOTE:** This policy and the criteria below do not apply to non-liposomal forms of intravenous irinotecan (generic, Camptosar). Non-liposomal generic irinotecan and brand Camptosar IV solution do not require pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of liposomal irinotecan (Onivyde) prior to coverage.

I. **Continuation of therapy (COT):** Liposomal irinotecan (Onivyde) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:

      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:

      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Liposomal irinotecan (Onivyde) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

   A. A diagnosis of **metastatic pancreatic cancer**.

   AND

   B. There has been progression of disease following gemcitabine-based chemotherapy.

   AND

   C. Liposomal irinotecan (Onivyde) will be given in combination with fluorouracil and leucovorin.
III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider liposomal irinotecan (Onivyde) to be a self-administered medication.
B. When pre-authorization is approved, liposomal irinotecan (Onivyde) may be authorized in doses up to 70 mg/m² every two weeks until disease progression.
C. Authorization may be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Liposomal irinotecan (Onivyde) is considered not medically necessary when used as monotherapy for metastatic pancreatic cancer.

V. Liposomal irinotecan (Onivyde) is considered investigational when used for all other conditions, including but not limited to:
A. Colorectal cancer
B. First-line treatment for pancreatic cancer
C. Gastric cancer
D. High grade glioma
E. Lung cancer
F. Osteosarcoma
G. Soft tissue sarcoma

Position Statement

Summary
- Liposomal irinotecan (Onivyde) is an intravenously administered medication for the treatment of metastatic pancreatic cancer.
- Liposomal irinotecan (Onivyde) has only been studied in the post-gemcitabine, metastatic pancreatic cancer setting (i.e. second-line following progression of disease on gemcitabine-based chemotherapy).
- Although the pivotal trial for the approval of liposomal irinotecan (Onivyde) included a monotherapy arm, use of liposomal irinotecan (Onivyde) without fluorouracil and leucovorin did not demonstrate improvements in overall survival (OS) compared to the combination, therefore liposomal irinotecan (Onivyde) monotherapy is considered not medically necessary.
- The FDA labeling states that liposomal irinotecan (Onivyde) is not indicated as a single agent for the treatment of patients with metastatic pancreatic cancer.
- There is currently no established standard of care for the treatment of metastatic pancreatic cancer in the second-line setting; participation in a clinical trial is the preferred when available. The National Comprehensive Cancer Network (NCCN) Pancreatic Adenocarcinoma guideline recommends liposomal irinotecan (Onivyde),
gemcitabine-based chemotherapy or fluoropyrimidine-based chemotherapy, depending on the agents used in the first-line setting. Liposomal irinotecan (Onivyde) is considered a category 1 recommendation for patients previously treated with gemcitabine-based therapy. [1]

- The recommended dose of liposomal irinotecan (Onivyde) is 70 mg/m² every two weeks until disease progression or unacceptable toxicity. The safety and effectiveness of higher doses or more frequent dosing have not been established. [2]

- There is currently no published data that evaluates the safety and efficacy of liposomal irinotecan (Onivyde) in any other cancer setting.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The effectiveness of liposomal irinotecan (Onivyde) was evaluated in a single, open-label, randomized clinical trial in patients with metastatic pancreatic cancer with documented disease progression, after gemcitabine or gemcitabine-based therapy. [3] Patients with locally advanced disease were not included in the study population.

- The primary endpoint of the pivotal trial was overall survival (OS). Combination treatment with irinotecan liposome (Onivyde) and fluorouracil and leucovorin resulted in a two-month improvement in median OS compared to fluorouracil and leucovorin alone.

- In the liposomal irinotecan (Onivyde) monotherapy arm, there was no statistically significant difference is median OS compared to fluorouracil and leucovorin alone.

Investigational Uses

- Liposomal irinotecan (Onivyde) is being studied in the first-line pancreatic cancer setting and a variety of other cancers such as colorectal cancer, gastric cancer, high grade glioma, lung cancer, osteosarcoma, and soft tissue sarcoma. [4]

- Although liposomal irinotecan (Onivyde) is being studied for the treatment of various cancers, there is currently no published evidence supporting its safety or efficacy in these settings.
Cross References

Abraxane, nab-paclitaxel, Medication Policy Manual, Policy No. 310

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Revision History

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<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
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<tr>
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<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<td>1/31/2018</td>
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<td>11/10/2017</td>
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<td>1/8/2016</td>
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Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Policy No:** dru445  

**Topic:** Imlygic, talimogene laherparepvec  

**Date of Origin:** February 12, 2016  

**Committee Approval Date:** October 15, 2021  

**Next Review Date:** December 2022  

**Effective Date:** January 1, 2022  

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Talimogene laherparepvec (Imlygic) is an oncolytic immunotherapy indicated for the treatment of unresectable melanoma lesions in patients with recurrent melanoma after initial surgery. Talimogene laherparepvec (Imlygic) is injected directly into melanoma lesions by a healthcare provider in a clinic setting.
Policy/Criteria

Most contracts require pre-authorization approval of talimogene laherparepvec (Imlygic) prior to coverage.

I. Continuation of therapy (COT): Talimogene laherparepvec (Imlygic) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health.

II. New starts (treatment-naïve patients): Talimogene laherparepvec (Imlygic) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

A. A diagnosis of recurrent, unresectable, advanced melanoma (stage III or stage IV-M1a). If disease is metastatic (stage IV-M1a), the metastases only involve sites on the skin, subcutaneous tissue, or lymph nodes.

AND

B. The patient is not immunocompromised (including chronic use of antivirals, systemic corticosteroids at doses of >10 mg prednisone or equivalent, or any medications causing bone marrow suppression).
AND
C. Talimogene laherparepvec (Imlygic) is used after initial surgical treatment for melanoma.

AND
D. Talimogene laherparepvec (Imlygic) will be used as monotherapy.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers laherparepvec (Imlygic) coverable only under the medical benefit (as a provider-administered medication).
B. When pre-authorization is approved, talimogene laherparepvec (Imlygic) may be covered in quantities as follows:
   1. Initial Authorization: Talimogene laherparepvec (Imlygic) may be covered in quantities up to 48 mL per 6 months.
   2. Continued Authorization: Talimogene laherparepvec (Imlygic) may be covered in quantities up to 48 mL per 6 months.
C. Authorization shall be reviewed as follows to confirm that the current medical necessity criteria are met, and that the medication is effective.
   1. Initial authorization shall be reviewed at 6 months.
   2. Continued authorization or re-authorization (after the initial 6-month period) shall be reviewed every 6 months. Clinical documentation (including, but not limited to chart notes) must indicate that there is a partial or complete tumor response (reduction in lesion size) and the absence of visceral organ metastases.

IV. Talimogene laherparepvec (Imlygic) is considered not medically necessary when used for all other conditions, including but not limited to:
A. Early-stage melanoma (stage I or II).
B. Cosmetic indications.

V. Talimogene laherparepvec (Imlygic) is considered investigational when used for all other conditions, including but not limited to:
A. Metastatic melanoma with systemic disease or visceral metastases (stage IV-M1b or stage IV-M1c).
B. Breast cancer.
C. Squamous cell carcinoma of the head and neck (SCCHN).
D. Pancreatic cancer.
E. Use in combination with any other anticancer therapies.
Position Statement

Summary

- Talimogene laherparepvec (Imlygic) is used for the treatment of melanoma lesions when there is recurrence of the melanoma after initial resection. It is injected directly into the lesion by a trained healthcare provider.

- The intent of this policy is to cover talimogene laherparepvec (Imlygic) for the indication and regimen for which it has been shown to be safe and effective, as detailed in the coverage criteria.

- One study found that patients (stage IIIB, IIIC, and IV-M1a) treated with talimogene laherparepvec (Imlygic) had a decrease in melanoma lesion size compared to patients treated with granulocyte macrophage colony-stimulating factor (GM-CSF). [1]

- Talimogene laherparepvec (Imlygic) has not been shown to improve overall survival or prevent metastasis of disease. Additionally, it has not been shown to provide any benefit in patients with disease that has spread to internal organs.

- Patients who have problems with their immune system or are required to use medications that affect their immune system should not take talimogene laherparepvec (Imlygic). Since talimogene laherparepvec (Imlygic) has not been studied in these patients, the safety in this population is uncertain and there is an increased risk of severe infection. [2]

- Talimogene laherparepvec (Imlygic) has not been studied in combination with other therapies. The safety and effectiveness of combination treatment is uncertain.

- The safety and effectiveness of talimogene laherparepvec (Imlygic) in conditions other than melanoma has not been studied.

- The recommended dose of talimogene laherparepvec (Imlygic) is an initial dose of up to 4 mL of a $10^6$ PFU/mL injection, followed by a second dose of up to 4 mL of a $10^8$ PFU/mL injection in three weeks. Subsequently, the recommended dose is up to 4 mL of a $10^8$ PFU/mL injection every two weeks. The safety and effectiveness of higher doses has not been established. [2]

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The safety and efficacy of talimogene laherparepvec (Imlygic) was investigated in one open-label trial (OPTiM trial) in patients with stage IIIB, IIIC, or IV, unresectable melanoma. Patients were randomized to receive either talimogene laherparepvec (Imlygic) or GM-CSF (sargramostim [Leukine]) for 24 weeks, or until there were no remaining lesions that qualified for continued treatment. [1,3]
Among talimogene laherparepvec (Imlygic)-treated patients, 16% achieved durable response (complete or partial response maintained continuously for at least 6 months), compared to 2.1% among GM-CSF-treated patients. [1,2]

Efficacy is based on shrinking cutaneous lesions, a surrogate endpoint.

Talimogene laherparepvec (Imlygic) failed to show improvement in overall survival based on pre-specified primary analysis in the clinical trial. [1,3]

The National Comprehensive Cancer Network (NCCN) guidelines for melanoma lists talimogene laherparepvec (Imlygic) as a recommended option for the local treatment of lesions in patients with stage III and stage IV-M1a disease. [4]

**Not Medically Necessary Uses**

- There is a lack of evidence that talimogene laherparepvec (Imlygic) is safer or more effective than other treatments for stage I and II melanoma such as chemotherapies, systemic immunotherapies, or targeted therapies.
- The use of talimogene laherparepvec (Imlygic) for cosmetic indications is considered not medically necessary.

**Investigational Uses**

- A subgroup analysis of the open-label OPTiM trial found no difference in DRR or OS for patients who were treated with talimogene laherparepvec (Imlygic) compared to patients in the control arm if they had stage IV-M1b and stage IV-M1c melanoma. There is no evidence that talimogene laherparepvec (Imlygic) has an effect on systemic disease or visceral metastases. [1]
- Talimogene laherparepvec (Imlygic) has not been studied in patients with less common types of melanoma, including primary ocular or mucosal melanoma. [2]
- Talimogene laherparepvec (Imlygic) is currently being studied in other cancers. There is no reliable evidence (well-designed, randomized, double-blinded trials) supporting its use in cancers other than melanoma.
- Although talimogene laherparepvec (Imlygic) is being studied for the treatment of breast cancer, pancreatic cancer, and SCCHN, there is currently no published evidence supporting its safety or efficacy in this setting. [5]
- There are currently no published trials studying the use of talimogene laherparepvec (Imlygic) in combination with other cancer therapies for the treatment of melanoma. The safety and efficacy of combination treatment with other therapies is uncertain.

**Safety** [2,3]

- Safety information is primarily derived from the pivotal OPTiM trial. Median duration of treatment was 23 weeks (range 0.1-78.9 weeks) among patients treated with talimogene laherparepvec (Imlygic).
- The most commonly reported AEs (> 20% incidence) include: flu-like symptoms, fatigue, chills, pyrexia, nausea, injection site pain, and vomiting. An overwhelming majority (90%) of patients treated with talimogene laherparepvec (Imlygic) experienced flu-like symptoms. These reactions were more frequent in the first 3 cycles of treatment and resolved within 3 days of onset.

- Severe AEs included cellulitis, impaired wound healing, and immune-mediated disease (e.g., glomerulonephritis).

- Talimogene laherparepvec (Imlygic) is contraindicated in immunocompromised patients, including those with a history of primary or acquired immunodeficient states, leukemia, lymphoma, AIDS or other clinical manifestations of infection with human immunodeficiency viruses, and those on immunosuppressive therapy, due to the risk of life-threatening disseminated herpetic infection.

- The safety and efficacy of talimogene laherparepvec (Imlygic) has not been studied in patients requiring chronic use of antivirals, systemic corticosteroids at doses of >10 mg prednisone or equivalent, or any medications causing bone marrow suppression.

### Cross References

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Revision History

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| 10/15/2021    | • COT language updated (no change to intent).  
|               | • No changes to the coverage criteria with this annual review. |
| 10/28/2020    | • Continuation of care language was added to the policy.  
|               | • There were no changes to the intent of the existing coverage criteria. |
| 10/23/2019    | No changes to coverage criteria with this annual update. |
| 09/21/2018    | No changes to coverage criteria with this annual update. |
| 08/11/2017    | No changes to coverage criteria with this annual update. |
| 02/17/2017    | Added coverage for stage IV-M1a disease, clarified reauthorization criteria. Moved stage IV-M1b-M1c to investigational from NMN. |
| 02/11/2016    | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru463

Topic: Tecentriq, atezolizumab

Date of Origin: July 15, 2016

Committee Approval Date: March 18, 2022

Next Review Date: December 2022

Effective Date: April 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Atezolizumab (Tecentriq) is an intravenously administered immunotherapy used in the treatment of various cancers. It belongs to a class of medications called programmed death-ligand (PD-L1) blocking antibodies.
Policy/Criteria

Most contracts require pre-authorization approval of Tecentriq (atezolizumab) prior to coverage.

I. Continuation of therapy (COT): Tecentriq (atezolizumab) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Tecentriq (atezolizumab) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that one of the following criterion A through D below is met.

A. A diagnosis of non-small cell lung cancer (NSCLC), when criterion 1 or 2 below are met:
   1. NSCLC, metastatic (stage IV) disease, when criteria a and b below are met.
      a. One of the following criteria are met (i or ii):
         i. There is either no prior use of PD-1 inhibitors or PD-L1 inhibitors (see Appendix I).

OR
ii. Documented prior use of Tecentriq (atezolizumab) with NO progression of disease while on Tecentriq (atezolizumab) adjuvant therapy.

AND

b. Tecentriq (atezolizumab) will be used in one of the following settings (i, ii, or iii):

i. As monotherapy in the first-line setting when the tumor has high PD-L1 expression. High PD-L1 expression is defined as PD-L1 stained ≥ 50% of tumor cells [TC ≥ 50%] or PD-L1 stained tumor-infiltrating immune cells [IC] covering ≥ 10% of the tumor area [IC ≥ 10%]).

OR

ii. As combination-therapy in the first-line setting when criteria 1 and 2 below are met:

1. The tumor is an adenocarcinoma (non-squamous).

   AND

2. Use is initiated in combination with chemotherapy, such as a platin and taxane.

OR

iii. As monotherapy in the recurrent setting when there has been disease progression on or after a platin-containing chemotherapy regimen.

OR

2. NSCLC, stage II-IIIa disease, as adjuvant therapy, when all criteria (a through d) below are met.

a. Used in the adjuvant setting, after complete tumor resection.

   AND

b. Used as a monotherapy.

   AND

c. Documentation of PDL1 expression ≥1% of tumor cells [TC ≥1%] is provided.

   AND

d. There is clinical documentation of previous adjuvant platinum-containing chemotherapy, unless the patient is ineligible for any platinum-containing chemotherapy (such as cisplatin or carboplatin).

PLEASE NOTE: Any platinum ineligibility may include poor kidney function, poor performance status (Eastern Cooperative Oncology Group [ECOG] score ≥2), heart failure, other comorbidities, etc.)
OR

B. A diagnosis of small cell lung cancer (SCLC), extensive-stage (ES), when criteria 1, 2, and 3 below are met:
   1. No prior systemic treatment for extensive-stage SCLC (not including any systemic treatment for early/limited-stage SCLC).
   AND
   2. Use will be initiated in combination with carboplatin and etoposide.
   AND
   3. No prior use of PD-1 inhibitors or PD-L1 inhibitors (see Appendix 1).

OR

C. A diagnosis of hepatocellular carcinoma (HCC), unresectable or metastatic, when criteria 1, 2, and 3 below are met:
   1. Patient has a Child-Pugh score of 5 to 6 (class A).
   AND
   2. No prior systemic therapy for HCC.
   AND
   3. No prior use of PD-1 inhibitors or PD-L1 inhibitors (see Appendix 1).

OR

D. A diagnosis of cutaneous melanoma, unresectable or metastatic, when criteria 1, 2, and 3 below are met:
   1. The cancer is BRAF V600 mutation-positive.
   AND
   2. Tecentriq (atezolizumab) will be administered in combination with Zelboraf (vemurafenib) and Cotellic (cobimetinib).
   AND
   3. No prior use of PD-1 inhibitors or PD-L1 inhibitors (see Appendix 1).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Tecentriq (atezolizumab) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Tecentriq (atezolizumab) will be authorized in quantities as follows in Table 1 below:

Table 1. QL and Authorization Period

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<tr>
<td>Adjuvant NSCLC</td>
<td>Up to a maximum of 420 mg per 7 days (as 840 mg every 14 days, 1200 mg every 21 days, or 1680mg every 28 days)</td>
<td>Until disease progression, up to 12 months</td>
</tr>
<tr>
<td>All other covered diagnoses</td>
<td></td>
<td>Until disease progression</td>
</tr>
</tbody>
</table>

NSCLC: non-small cell lung cancer
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Tecentriq (atezolizumab) is considered investigational when administered concomitantly with other anti-cancer immuno-, targeted-, and chemotherapies with the exception of those specifically addressed in the coverage criteria above.

V. Tecentriq (atezolizumab) is considered investigational when used for all other conditions, including but not limited to:
   A. Renal cell carcinoma (RCC).
   B. Triple negative breast cancer (TNBC).
   C. Urothelial carcinoma (bladder cancer).

Position Statement

Summary

- Tecentriq (atezolizumab) is an intravenously (IV) administered programmed death-ligand 1 (PD-L1) blocking antibody (immunotherapy) used in the treatment of several types of cancers.
- The intent of this policy is to cover Tecentriq (atezolizumab) in settings where it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

* Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of Tecentriq (atezolizumab) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

* It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR), disease-free survival (DFS), and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.
- National Comprehensive Cancer Network (NCCN) guidelines recommend Tecentriq (atezolizumab) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.
- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.
- Tecentriq (atezolizumab) is IV administered as a 1200 mg dose every three weeks. Alternative dosing regimens include 840 mg IV every two weeks or 1680mg IV every four weeks.

- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using Tecentriq (atezolizumab) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

- The FDA indication for urothelial carcinoma (bladder cancer) was withdrawn after a confirmatory trial failed to demonstrate any clinical benefit in this treatment setting. As a result, the coverage of Tecentriq (atezolizumab) for bladder cancer is considered investigational.

- The FDA indication for use as a front-line therapy for locally advanced or metastatic, PD-L1-positive, triple negative breast cancer (TNBC) when used in combination with Abraxane (nab-paclitaxel) was withdrawn after a confirmatory trial failed to demonstrate any clinical benefit in this treatment setting. As a result, the coverage of Tecentriq (atezolizumab) for TNBC is considered investigational.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.**

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

**Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.**
CLINICAL EFFICACY

Non-Small Cell Lung Cancer (NSCLC)

Adjuvant therapy

- Tecentriq (atezolizumab), as a single agent, demonstrated improved disease-free survival (DFS) relative to best supportive care in the adjuvant setting for patients with stage II-IIIA NSCLC after complete tumor resection and standard adjuvant therapy with a platinum-based chemotherapy regimen and, if the tumor is ≥1% PD-L1 positive. Patients in the experimental arm received Tecentriq (atezolizumab) every 3 weeks for 16 cycles unless disease recurrence or unacceptable toxicity occurred. [1][2]
  
  * Patients in the trial received a median of four cycles of adjuvant cisplatin-based chemotherapy after complete resection.
  
  * Although patients with >1% PD-L1 expression demonstrated a DFS benefit, patients with a ≥50% PD-L1 expression appeared to have the most significant DFS benefit based on a pre-determined subgroup analysis.
  
  * DFS is not a validated endpoint in adjuvant NSCLC and has not been correlated to meaningful clinical outcomes such as overall survival.

- The National Comprehensive Cancer Network (NCCN) NSCLC treatment guideline lists Tecentriq (atezolizumab) as an option in the adjuvant setting for completely resected stage IIB-III A or high-risk stage IIA PD-L1 >1% NSCLC in patients who received previous adjuvant chemotherapy. [3]

Front-line therapy (as monotherapy):

- The approval of Tecentriq (atezolizumab) as a front-line agent (as monotherapy) for metastatic NSCLC with high PD-L1 expression was based on an open-label (not blinded), phase 3 trial [IMpower110 study] that compared Tecentriq (atezolizumab) with platinum doublet chemotherapy. [2][4]
  
  * Patients with EGFR or ALK aberrations were excluded from inclusion in the trial.
  
  * The primary endpoint of OS was tested hierarchically according to PD-L1 expression status. Only those in the high PD-L1 expression group (defined as PD-L1 stained ≥ 50% of tumor cells [TC ≥ 50%] or PD-L1 stained tumor-infiltrating immune cells [IC] covering ≥ 10% of the tumor area [IC ≥ 10%] met the prespecified efficacy boundary.
  
  * At interim, a seven-month improvement in median OS was reported in the Tecentriq (atezolizumab) arm for patients with high PD-L1 expression.

- Tecentriq (atezolizumab) monotherapy is listed in the NCCN NSCLC guideline as a preferred, recommended therapy among other immunotherapies, for metastatic NSCLC with high PD-L1 (>50%) expression) and no driver mutations. [3]

Front-line therapy, in combination with chemotherapy plus bevacizumab:

- The approval of Tecentriq (atezolizumab) as a front-line therapy for non-squamous metastatic NSCLC was based on a randomized, open-label (not blinded), phase 3 trial [IMpower150] that compared atezolizumab (A, Tecentriq)/ carboplatin (C)/ paclitaxel (P)/bevacizumab (B) [ABCP] with BCP alone in patients with metastatic, non-squamous...
NSCLC. [5]

* Patients with EGFR or ALK aberrations were excluded from inclusion in the trial.
* A 4-month survival advantage was reported in the ABCP group relative to the BCP group, with a median OS of 19.2 months, and 7.0 months, respectively [HR 0.71; 95% CI, 0.59, 0.85; p = 0.0002].
* There were many threats to the reliability of these results, including the lack of blinding and numerous protocol changes during the trial which altered the predetermined efficacy analysis (high potential for bias in the results).
* Despite the positive OS results, it is not known whether the addition of bevacizumab to Tecentriq (atezolizumab) plus platin-based chemotherapy is superior to Tecentriq (atezolizumab) plus platin-based chemotherapy alone, or whether the additional risks with this multi-drug regimen are acceptable, as ABCP was not formally compared with ACP. However, the median OS for these two groups was numerically similar suggesting a lack of any survival benefit (19.2 months and 19.4 months, respectively). Furthermore, it is not known if the addition of Tecentriq (atezolizumab) to platin-based chemotherapy is superior to platin-based chemotherapy alone. This is an area of ongoing investigation.
* Additionally, the lack of formal comparison between the ABCP and ACP groups does not allow for an accurate assessment of the potential added safety risks when bevacizumab is added to an immunotherapy-based regimen.

The NCCN NSCLC treatment guideline lists Keytruda (pembrolizumab)/cisplatin/Alimta (pemetrexed) as a preferred category 1 recommendation for front-line use in metastatic, non-squamous NSCLC. Tecentriq (atezolizumab)/carboplatin/paclitaxel/bevacizumab is listed as an ‘other’ category 1 recommendation. [3]

**Front-line therapy, in combination with a platinum plus a taxane:**

- Tecentriq (atezolizumab) was also approved as part of a front-line regimen for non-squamous metastatic NSCLC based on a randomized, open-label (not blinded), phase 3 trial that compared Tecentriq (atezolizumab) plus nab-paclitaxel and carboplatin with nab-paclitaxel and carboplatin with or without pemetrexed switch maintenance. [6]
  * Most patients had no EGFR or ALK aberrations.
  * Tecentriq (atezolizumab) was initiated with chemotherapy (carboplatin and nab-paclitaxel) as induction and then continued as monotherapy versus carboplatin plus nab-paclitaxel induction followed by pemetrexed switch maintenance or best supportive care (BSC).
  * The Tecentriq (atezolizumab) treatment arm demonstrated improved overall survival relative to the chemotherapy arm, with a 4.7-month improvement in median OS and 1.5-month improvement in median PFS.
  * It was noted that the combination of Tecentriq (atezolizumab) with chemotherapy may add additional toxicity relative to either therapy alone.
  * Applicability of the results to patients with squamous histology or patients with EGFR or ALK genetic aberrations cannot be determined as the sample size for these groups was too small.
The NCCN NSCLC treatment guideline lists Tecentriq (atezolizumab) plus carboplatin and nab-paclitaxel in the first-line, non-squamous, metastatic NSCLC setting as one of several ‘other recommended’ therapy options. [3]

Subsequent-line therapy (after disease progression on platinum-based front-line therapy):
- Tecentriq (atezolizumab), as a single agent, demonstrated improved OS relative to docetaxel in patients with locally advanced or metastatic NSCLC who had disease progression after standard therapy with a platinum-based chemotherapy regimen and, if the tumor was EGFR- or ALK-positive, an appropriate tyrosine kinase inhibitor. [7, 8]
- A three- to four-month improvement in median overall survival was demonstrated with Tecentriq (atezolizumab) relative to docetaxel. Benefit was noted regardless of PD-L1 expression.
- Prior treatment with PD-1/PD-L1 inhibitors was not allowed.

The National Comprehensive Cancer Network (NCCN) NSCLC treatment guideline lists Tecentriq (atezolizumab), Opdivo (nivolumab), and Keytruda (pembrolizumab) among preferred category 1 recommendations for locally advanced or metastatic NSCLC that progressed on or after standard front-line therapy when there has been no prior use of anti-PD-1/PD-L1 therapy. [3]

Small Cell Lung Cancer (SCLC)
- The initial approval in SCLC was based on the results of a phase 3 RCT [IMpower133] that compared Tecentriq (atezolizumab) plus chemotherapy (carboplatin plus etoposide) with chemotherapy alone (placebo arm) in patients with untreated, extensive-stage SCLC (ES-SCLC). There was a small, but statistically significant difference in the 1-year survival rate that favored patients in the Tecentriq (atezolizumab) treatment arm. [2, 9]
- Subjects included in the study had no prior treatment for extensive-stage SCLC. If they had prior treatment for limited-stage SCLC, they had to have been treated with curative intent and must have had a treatment-free interval of at least 6 months since their last chemotherapy, radiotherapy, or chemoradiotherapy.
- Patients with untreated or symptomatic CNS metastasis were not included in the study.
- Tecentriq (atezolizumab) was initiated with carboplatin plus etoposide (given for four cycles) and was then continued as maintenance until disease progression.
- Overall survival at 12 months was 51.7% and 38.2% in the Tecentriq (atezolizumab) and placebo arms, respectively [HR 0.70; 95% CI: 0.54, 0.91; p = 0.007]. Median OS was 12.3 months [95% CI: 10.8, 15.9] and 10.3 months [95% CI: 9.3, 11.3], respectively. No p-value was reported for the medians. Because the confidence intervals overlap, the meaningfulness of these findings is difficult to interpret.
- The NCCN included front-line use of Tecentriq (atezolizumab) as a preferred treatment option as initial therapy for ES-SCLC based on this data. [10]
- Optimal sequencing of chemotherapy and immunotherapy in SCLC has not been studied. Sequential use of immunotherapies is not supported by current evidence.
**Hepatocellular carcinoma (HCC)**

- The initial approval in HCC was based on the results of one open-label, phase 3 RCT [IMbrave150] in patients with previously untreated, unresectable, or metastatic HCC. [2,11]
  * The trial compared Tecentriq (atezolizumab) given in combination with bevacizumab with Nexavar (sorafenib) as a monotherapy.
  * All patients included in the study had Child-Pugh class A disease.
  * An early analysis of overall survival (OS) favored Tecentriq (atezolizumab) plus bevacizumab over Nexavar (sorafenib). To date, only a relative difference has been reported between the treatment arms. Median OS was reached in the Nexavar (sorafenib) arm at 13.2 months but has not been reached in the Tecentriq (atezolizumab) plus bevacizumab combination arm at 17 months.
  * It is unknown how Tecentriq (atezolizumab) plus bevacizumab compares to either agent alone in this setting.
- The NCCN guidelines include the front-line use of Tecentriq (atezolizumab) plus bevacizumab among ‘other preferred’ treatment options as an initial systemic therapy for advanced HCC. [12]

**Cutaneous Melanoma, BRAF mutation-positive**

- The approval of Tecentriq (atezolizumab) in BRAF mutation-positive cutaneous melanoma is based on a large, double-blind, placebo-controlled RCT [IMspire150 study] that compared Tecentriq (atezolizumab) plus Zelboraf (vemurafenib) plus Cotellic (cobimetinib) with placebo plus Zelboraf (vemurafenib) plus Cotellic (cobimetinib). [2,13]
  * Subjects in the study had unresectable stage IIIC or stage IV (metastatic) cutaneous melanoma with a BRAF V600 mutation.
  * All patients were naïve to prior systemic therapy in the metastatic disease setting.
  * There was a PFS advantage of approximately four and a half months in the Tecentriq (atezolizumab) versus the placebo treatment arm [15.1 months and 10.6 months, respectively]. These results were statistically significant; however, the clinical meaningfulness of this difference is not known.
  * The OS data in this trial are not yet mature. No statistical difference in survival between the two therapy arms has been detected to date.
- Due to the design of this study and the current lack of proven clinical benefit, it is not known if adding Tecentriq (atezolizumab) to front-line BRAF inhibitors is superior to waiting to use anti-PD-1/PD-L1 therapies in the subsequent-line setting in BRAF mutation-positive melanoma. This should be considered in the decision when choosing a front-line therapy as sequential use of anti-PD-1/PD-L1 therapies is not covered by the health plan.
- The NCCN cutaneous melanoma guideline includes the use of Tecentriq (atezolizumab) in combination with Zelboraf (vemurafenib) and Cotellic (cobimetinib) among recommended options for the front-line treatment of BRAF mutation-positive metastatic or unresectable melanoma. [14]
NON-COVERED USES

Triple Negative Breast Cancer (TNBC)

Front-line advanced treatment setting:

- The FDA indication for use as a front-line therapy for locally advanced or metastatic, PD-L1-positive, triple negative breast cancer (TNBC) when used in combination with Abraxane (nab-paclitaxel) was withdrawn after a confirmatory trial failed to demonstrate any clinical benefit in this treatment setting. As a result, the coverage of Tecentriq (atezolizumab) for TNBC is considered investigational.

- The rationale is as follows:
  * Tecentriq (atezolizumab) in combination with Abraxane (nab-paclitaxel) is FDA approved as a first-line therapy for locally advanced (unresectable) or metastatic TNBC (mTNBC) when the tumor expresses PD-L1.
  * However, this combination regimen has not adequately been demonstrated to provide any additional benefit, or to have an acceptable safety profile over, other coverable treatment options. The confirmatory trial failed to demonstrate any clinical benefit in this treatment setting. As a result, the coverage of Tecentriq (atezolizumab) for TNBC is considered investigational.
  * Accelerated FDA approval was granted based on an exploratory analysis, which found a small improvement in progression-free survival (PFS) in patients with tumors that express PD-L1; however, no difference in overall survival, or any other clinically relevant outcome, was demonstrated. \(^{2,15}\)
  * As is the case with medications approved via the FDA accelerated process, further studies are required to show that the medication improves a clinically relevant outcome, such as improved survival or quality of life, before regular (continued) approval is granted.
  * While post-hoc subgroup analyses suggested a potential benefit in the PD-L1 positive population, this result was not statistically significant by the predefined endpoints in the trial (using a priori study criteria). \(^{15,16}\)
  * There is a known potential for toxicity with PDL-1 inhibitors, including Tecentriq (atezolizumab).
  * In summary, given a modest improvement in a surrogate endpoint (PFS), a failure in the confirmatory trial to find an improvement in health outcomes (no proven overall survival benefit), conflicting data from other trials in this setting, risk of harms with PD-L1 inhibitors, and the availability of several other treatment options, the use of Tecentriq (atezolizumab) for front-line treatment mTNBC is considered investigational.

- The study upon which the accelerated FDA approval was based [IMpassion130 study] compared front-line use of Tecentriq (atezolizumab) plus Abraxane (nab-paclitaxel) versus Abraxane (nab-paclitaxel) alone in patients with unresectable locally advanced, or metastatic TNBC. Subjects were enrolled, regardless of PD-L1 expression. \(^{2,15}\)
Accelerated approval was granted based on an improvement in PFS in the combination arm relative to the Abraxane (nab-paclitaxel) alone (placebo) arm. The initial primary endpoint was PFS in the intent-to-treat population. The primary endpoint was later modified to evaluate the PD-L1-positive population.

The median PFS was 7.5 months and 5.0 months (HR 0.62 [95% CI: 0.49, 0.78]; p<0.001), respectively in the PD-L1 positive cohort (PD-L1 [IC] > 1%).

The trial was not able to demonstrate improvement in median OS or any other clinically relevant outcome, such as symptom control or quality of life. As with all medications approved via the FDA accelerated pathway, continued approval is contingent on additional trials that demonstrate clinical benefit.

Updated results from the second interim analysis again reported no statistically significant improvement in OS in the pre-specified ITT population. The significance of the OS difference in the PD-L1 positive cohort is unknown, as statistical testing was not possible for this exploratory analysis. [16]

Overall, there was a small increase in grade 3 and 4 adverse effects when Tecentriq (atezolizumab) was added to Abraxane (nab-paclitaxel). Additionally, immune reactions requiring systemic corticosteroids occurred in 13% of subjects in the Tecentriq (atezolizumab) arm.

- In addition to the use of a non-validated surrogate endpoint with unknown clinical relevance, there were several potential sources of bias in the trial that may overstate potential for benefit including a higher rate of Abraxane (nab-paclitaxel) discontinuation from the placebo arm for reasons other than meeting a study endpoint.

- Subsequently, other trials of Tecentriq (atezolizumab) have demonstrated variable results such that the benefit of Tecentriq (atezolizumab) in first-line treatment of unresectable TNBC remain uncertain (‘investigational’) at this time.

- The FDA issued a safety warning after OS reportedly favored placebo plus paclitaxel over Tecentriq (atezolizumab) plus paclitaxel in the first-line treatment of locally advanced/metastatic setting in the IMpassion-131 trial. [17]

- Further data in the metastatic setting from the IMpassion-132 trial has been delayed after a major expansion in the population was announced. [18]

The NCCN breast cancer guideline removed Tecentriq (atezolizumab). [19]

Front-line advanced treatment setting:

- Currently, there is insufficient evidence for the use of Tecentriq (atezolizumab) for breast cancer in other settings, including neoadjuvant, adjuvant, and subsequent therapy (second-line or beyond) settings for breast cancer (TNBC or other). Therefore, the use of Tecentriq (atezolizumab) for other settings, including neoadjuvant, adjuvant, and subsequent therapy (second-line or beyond), breast cancer is considered investigational.

- Trials of Tecentriq (atezolizumab) in TNBC have demonstrated variable results such that the benefit of Tecentriq (atezolizumab) in TNBC remain uncertain at this time. For settings aside from mTNBC (for mTNBC, see the previous section):
* The IMpassion-031 trial found an improvement in pathological complete response (cPR) rates, the co-primary endpoint, associated with the addition of Tecentriq (atezolizumab) to neoadjuvant chemotherapy [Abraxane (nab-paclitaxel)] as compared to use of Abraxane (nab-paclitaxel) alone in patients with early TNBC (58% vs. 41%, respectively). [20]

* Subsequently, the NeoTRIPaPDL1 trial found no difference in the secondary pathological complete response (cPR) associated with the addition of Tecentriq (atezolizumab) to neoadjuvant chemotherapy [carboplatin/Abraxane (nab-paclitaxel)] versus chemotherapy alone. [21]

* Other trials are ongoing. [18]

Other Investigational Uses

- **Urothelial Carcinoma (UC, Bladder cancer):**
  * Tecentriq (atezolizumab) initially received Accelerated approval as a subsequent therapy (after disease progression on a cisplatin-based chemotherapy regimen) for unresectable or metastatic bladder cancer based on tumor response rate in a non-comparative (single-arm), observational study [IMvigor-210 study]. [22]
  * A subsequent phase 3 trial [IMvigor-211 study] intended to confirm the efficacy of Tecentriq (atezolizumab) in the bladder cancer setting failed to demonstrate an OS advantage over standard chemotherapy in the second-line setting. [23] Based on this failed confirmatory trial the manufacturer voluntarily withdrew the bladder cancer indication. Because there is no proven net health benefit relative to the standard of care, the use of Tecentriq (atezolizumab) for bladder cancer is considered investigational.
  * An additional follow-on, phase 3 trial of Tecentriq (atezolizumab) in the adjuvant muscle-invasive bladder cancer (MIBC) setting failed to meet its primary endpoint (disease-free survival) versus best supportive care [IMvigor-010 study]. [24]

- **RCC:** A phase 3 study [IMmotion 151] evaluated Tecentriq (atezolizumab) plus bevacizumab versus Sutent (sunitinib) in patients with clear cell or sarcomatoid, metastatic renal cell carcinoma (RCC). A PFS advantage was reported for the combination therapy treatment arm in patients with PD-L1-positive tumors (PD-L1 > 1%). There is currently no established clinical benefit as PFS is an unvalidated surrogate endpoint in this disease. Furthermore, it is unknown what role combination therapy plays in this setting relative to monotherapy with bevacizumab or Tecentriq (atezolizumab) alone. Combination use of these agents in this setting is also not supported by compendia or national treatment guidelines. [25]
  * Tecentriq (atezolizumab) failed to meet its prespecified endpoints in several additional studies including colorectal cancer [IMblaze-370], and ovarian cancer [IMagyn050].

Dosing and Administration [2]

- Tecentriq (atezolizumab) is dosed as 1200 mg intravenously (IV) every 21 days.
- Alternative dosing regimens include 840 mg IV every two weeks or 1680 mg IV every four weeks until disease progression or unacceptable toxicity.
Adjuvant therapy for NSCLC is limited to a 12-month course, which is in line with FDA prescribing information.

### Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies

<table>
<thead>
<tr>
<th>Programmed death receptor-1 (PD-1) inhibitors</th>
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<tbody>
<tr>
<td>Jemperli (dostarlimab)</td>
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<tr>
<td>Keytruda (pembrolizumab)</td>
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<tr>
<td>Libtayo (cemiplimab-rwlc)</td>
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<td>Opdivo (nivolumab)</td>
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<table>
<thead>
<tr>
<th>Programmed death-ligand 1 (PD-L1) inhibitor</th>
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<tr>
<td>Bavencio (avelumab)</td>
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<td>Imfinzi (durvalumab)</td>
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<tr>
<td>Tecentriq (atezolizumab)</td>
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</table>

*a Or as listed on the FDA.gov website*

### Cross References

- Molecular Analysis for Targeted Therapy of Non-Small Cell Lung Cancer (NSCLC), Medical Policy Manual, Genetic Testing Policy No. 56
- Abraxane, nab-paclitaxel, Medication Policy Manual, Policy No. dru310
- Bavencio, avelumab, Medication Policy Manual, Policy No. dru499
- Cotellic, cobimetinib, Medical Policy Manual, Policy No. dru442
- Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500
- Jemperli, dostarlimab, Medication Policy Manual, Policy No. dru673
- Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367
- Libtayo, cemiplimab, Medication Policy Manual, Policy No. dru565
- Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390
- Zelboraf, vemurafenib, Medical Policy Manual, Policy No. dru266

### Codes

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<th>Codes</th>
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<tr>
<td>HCPCS</td>
<td>J9022</td>
<td>Injection, atezolizumab (Tecentriq), 10 mg</td>
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</table>
References


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 3/18/2022     | • Coverage criteria for use in the adjuvant setting in NSCLC was added to align with label.  
• Clarified that one of the following is required for use of Tecentriq (atezolizumab) in metastatic NSCLC: no prior use of PD-1/PD-L1 or no progression on prior Tecentriq (atezolizumab) treatment |
| 10/15/2021    | The coverage position for triple negative breast cancer (TNBC) was changed from ‘not medically necessary’ to ‘investigational’ with this update. The confirmatory clinical trial failed to demonstrate any clinical benefit in this population, so the manufacturer voluntarily withdrew this indication (it is no longer part of FDA labeling). |
| 4/21/2021     | • The coverage criteria in urothelial carcinoma (bladder cancer) were removed with this update. Coverage in this population was moved to the ‘investigational’ section of the policy. The confirmatory clinical trial failed to demonstrate any clinical benefit in this population so the manufacturer voluntarily withdrew this indication (it is no longer part of FDA labeling).  
• Streamlined coverage under NSCLC by removing the criterion requiring confirmation that no EGFR or ALK genomic aberrations are present. *(this is a well-observed standard of care)*  
• Streamlined coverage under SCLC by removing the criterion asking for details on prior treatment in limited-stage disease and the criterion surrounding the steroid requirement in CNS metastasis.  
• Added a criterion under HCC stating there has been no prior use of PD-1/ PD-L1 inhibitors to be consistent with other policy sections.  
• Added criteria for BRAF-positive cutaneous melanoma when used in combination with vemurafenib and cobimetinib.  
• Clarified the language under investigational section related to concomitant therapies by adding use with ‘targeted therapies’ (in addition to immuno- and chemotherapies) other than those specifically addressed in the policy as investigational. *(no change to original intent)*  
• Clarified the language surround NMN vs Investigational uses of atezolizumab in TNBC. *(no change to original intent)* |
| 10/28/2020    | • Simplified coverage criteria for bladder cancer.  
• Added coverage criteria for several newly FDA-approved indications:  
  - Hepatocellular carcinoma  
  - As monotherapy in the first-line setting for non-small cell lung cancer (NSCLC) for high PD-L1 expressing tumors.  
  - As combination therapy in the first-line setting for nonsquamous NSCLC when used with chemotherapy, such as a taxane and platin. |
<p>| 6/15/2020     | Removed references to brand Avastin from policy to account for upcoming changes in biosimilars policy (dru620). |</p>
<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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| 7/24/2019     | • Added use in triple negative breast cancer (TNBC), first-line, a new indication approved via the FDA accelerated approval pathway, as not medically necessary.  
• Updated dosing, to include alternative dosing intervals every two or four weeks.  
(Effective 8/15/2019). |
| 4/25/2019     | Add the concomitant use of bevacizumab with Tecentriq (atezolizumab) plus chemotherapy for NSCLC to “Not Medically Necessary” indications, based on the low quality of the evidence and the availability other similar therapies. |
| 1/31/2019     | Added coverage criteria for extensive-stage SCLC. |
| 7/20/2018     | Updated criteria under urothelial carcinoma to clarify coverage in the front-line setting for cisplatin-ineligible patients only when PD-L1 expressing and any platinum-ineligible patients, regardless of PD-L1 expression. |
| 4/20/2018     | No changes to coverage criteria with this annual update. Clarified authorization is valid “until disease progression” (no change to intent). |
| 9/8/2017      | • Updated criteria under urothelial carcinoma to include coverage as front-line for cisplatin ineligible patients  
• Added criteria for coverage as a subsequent therapy for metastatic NSCLC |
| 7/15/2016     | New policy |

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IMPORTANT REMINDER
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The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Ocrelizumab (Ocrevus) is an intravenously administered medication indicated for the treatment of relapsing or primary progressive forms of multiple sclerosis. It works by destroying certain immune cells that are involved in the multiple sclerosis immune response.
Policy/Criteria

Most contracts require pre-authorization approval of ocrelizumab (Ocrevus) prior to coverage.

I. Continuation of therapy (COT): Ocrelizumab (Ocrevus) may be considered medically necessary for COT when full policy criteria below are met.

II. New starts (treatment-naïve patients): Ocrelizumab (Ocrevus) may be considered medically necessary when Site of Care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers ocrelizumab (Ocrevus) coverable only under the medical benefit (as a provider-administered medication).
   B. Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement

Summary

- Ocrelizumab (Ocrevus) is a monoclonal antibody used as monotherapy for the treatment of patients with primary progressive multiple sclerosis (PPMS) and relapsing forms of multiple sclerosis (MS).
- Ocrelizumab (Ocrevus) is considered a disease-modifying multiple sclerosis treatment. Other disease-modifying multiple sclerosis treatments for relapsing forms of MS include alemtuzumab (Lemtrada), interferon beta products (Avonex, Rebif, Betaseron, Extavia, or Plegridy), fingolimod (Gilenya), glatiramer acetate, teriflunomide (Aubagio), and dimethyl fumarate. Rituximab may also be used off label for the treatment of relapsing forms of MS. [1]
- Ocrelizumab (Ocrevus) has not been studied in combination with other disease-modifying MS medications and it is therefore not recommended that ocrelizumab (Ocrevus) be administered concomitantly with other disease-modifying MS medications as efficacy and safety have not been established. Concomitant use of Ocrelizumab (Ocrevus) with any other disease-modifying therapy for MS is considered investigational.
- Ocrelizumab (Ocrevus) is an intravenously infused medication. The starting dose is 300 mg given on day one followed by 300 mg two weeks later. Thereafter, ocrelizumab (Ocrevus) is given every 6 months at a dose of 600 mg.
- The safety and effectiveness of ocrelizumab (Ocrevus) in conditions other than PPMS or relapsing forms of MS have not been established.
Clinical Efficacy in Multiple Sclerosis

- Ocrelizumab (Ocrevus) has been shown to reduce relapse rate, slows disability progression, and slows worsening of disease based on MRI outcomes in patients with relapsing forms of MS. [2]
  * Two identical, 96-week studies (OPERA I and OPERA II), evaluated the effects of ocrelizumab (Ocrevus) compared to interferon beta-1a (Rebiif) in patients with relapsing forms of MS. Ocrelizumab (Ocrevus) was superior to interferon beta-1a in reducing annualized relapse and in slowing confirmed disability progression. On MRI, the patients in the ocrelizumab (Ocrevus) group had fewer new and/or enlarging T2 lesions, less T1 lesions, and a reduced rate of total brain volume loss relative to the interferon beta-1a (Rebiif) group.

- Ocrelizumab (Ocrevus) has been shown to slow disability progression, and slow the worsening of MRI outcomes in patients with PPMS. [3]
  * One 120-week study (ORATORIO), evaluated the effects of ocrelizumab (Ocrevus) relative to placebo in patients with PPMS. Ocrelizumab (Ocrevus) was superior to placebo reducing the proportion of patients who had sustained 12-week confirmed disability progression. The treatment group also showed a significant decrease in T2 volume and showed significantly less brain volume loss on MRI.

Safety [4]

- Ocrelizumab (Ocrevus) contains warnings for infusion reactions, infections, and risk of malignancy.
- Common adverse events include upper respiratory tract infections, infusion reactions, skin infections, and lower respiratory tract infections.

Dosing and Administration [4]

- Ocrelizumab (Ocrevus) is administered as an intravenous (IV) infusion.
- The starting dose is 300 mg IV followed by 300 mg IV two weeks later. Subsequent doses of ocrelizumab (Ocrevus) are then given every 6 months at a dose of 600 mg IV as a single infusion.

Ocrelizumab (Ocrevus) – Use in Other Conditions

- Due to a lack of published data, the use of ocrelizumab (Ocrevus) in conditions other than relapsing forms of MS and PPMS is considered investigational.
- While Ocrelizumab (Ocrevus) has a similar mechanism of action to rituximab, it has not been studied for the same indications. Thus, due to a lack of data, these conditions are considered investigational.

Neuromyelitis Optica Spectrum Disorders (NMOSD)

- Neuromyelitis optica spectrum disorders (NMOSD; previously known as Devic disease) are characterized by a combination of bilateral optic neuropathy and cervical myelopathy. While both NMOSD and MS are demyelinating diseases they are
considered different diseases based on unique immunologic features and differences in imaging features, biomarkers, and neuropathology. [5]

- For acute attacks and relapses of NMO, treatment usually consists of intravenous glucocorticoids followed soon by plasmapheresis for refractory or progressive symptoms. For prevention of attacks, systemic immunosuppression with agents including azathioprine, mycophenolate mofetil, rituximab, and mitoxantrone has been used, given the evidence that humoral autoimmunity plays a role in the pathogenesis of NMO. [6,7]

- Rituximab has been shown to the frequency of NMO relapses and neurologic disability based on results from one systematic review. However, the optimal treatment regimen and duration have not been determined and additional long-term safety experience is needed to clarify the role of rituximab as a first-line option. [8]

- There is no published evidence to support the use of ocrelizumab (Ocrevus) for NMO.

### Appendix A: Disease-Modifying Agents Used in the Treatment of Multiple Sclerosis (MS)

<table>
<thead>
<tr>
<th>Drug Name</th>
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<tbody>
<tr>
<td>Alemtuzumab (Lemtrada)</td>
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<tr>
<td>Cladribine (Mavenclad)</td>
</tr>
<tr>
<td>Dimethyl fumarate</td>
</tr>
<tr>
<td>Diroximel fumarate (Vumerity)</td>
</tr>
<tr>
<td>Fingolimod (Gilenya)</td>
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<tr>
<td>Glatiramer acetate</td>
</tr>
<tr>
<td>Interferon beta-1a (Avonex, Rebif)</td>
</tr>
<tr>
<td>Interferon beta-1b (Betaseron, Extavia)</td>
</tr>
<tr>
<td>Mitoxantrone (Novantrone)</td>
</tr>
<tr>
<td>Monomethyl fumarate (Bafiertam)</td>
</tr>
<tr>
<td>Natalizumab (Tysabri)</td>
</tr>
<tr>
<td>Ocrelizumab (Ocrevus)</td>
</tr>
<tr>
<td>Ofatumumab (Kesimpta)</td>
</tr>
<tr>
<td>Ozanimod (Zeposia)</td>
</tr>
<tr>
<td>Peginterferon beta-1a (Plegridy)</td>
</tr>
<tr>
<td>Ponesimod (Ponvory)</td>
</tr>
<tr>
<td>Rituximab</td>
</tr>
<tr>
<td>Siponimod (Mayzent)</td>
</tr>
<tr>
<td>Teriflunomide (Aubagio)</td>
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Cross References

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<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J2350</td>
<td>Injection, ocrelizumab (Ocrevus), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2323</td>
<td>Injection, natalizumab (Tysabri), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0202</td>
<td>Injection, alemtuzumab (Lemtrada), 1 mg</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G35</td>
<td>Multiple sclerosis</td>
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Codes

References

4. Ocrevus [Prescribing Information]. South San Francisco, CA: Genentech; March 2017
### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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| 10/15/2021    | • Removed clinical coverage criteria (effective 1/1/2022).  
                • Updated Appendix A. |
| 1/20/2021     | • Clarified quantity limits.  
                • Updated Preferred Disease-Modifying Therapies (DMTs). |
| 1/22/2020     | • Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
                • Revised step therapy requirements to include cladribine (Mavenclad).  
                • Revised definition of relapsing form of MS. |
| 1/31/2019     | Clarified re-authorization requirements. |
| 5/18/2018     | Added ocrelizumab (Ocrevus) to the site of care program, effective 9/1/2018. |
| 3/19/2018     | Revised step therapy requirements to include teriflunomide (Aubagio). |
| 1/19/2018     | Clarified authorization periods. No change to intent of covered doses. |
| 8/11/2017     | • Revised step therapy requirements and definition of “ineffectiveness.”  
                • Added criteria for aggressive disease.  
                • Removed ocrelizumab (Ocrevus) from site of care program. |
| 4/14/2017     | Updated indication, dosing, and administration based on prescribing information. |
| 12/16/2016    | New Policy effective upon FDA approval of ocrelizumab (Ocrevus). |

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Description

Eteplirsen (Exondys 51) is an intravenous medication that may be used for Duchenne muscular dystrophy (DMD) when patients have a specific gene mutation. A clinical benefit, such as improved ambulation, of eteplirsen (Exondys 51) has not been established.
Policy/Criteria
Most contracts require pre-authorization approval of eteplirsen (Exondys 51) prior to coverage.

I. Continuation of therapy (COT): Eteplirsen (Exondys 51) is considered investigational for all conditions, per the full policy criteria below.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Eteplirsen (Exondys 51) is considered investigational for all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 51 skipping (Table 1).

Position Statement
Summary
- Eteplirsen (Exondys 51) is an intravenous therapy indicated for the treatment of Duchenne muscular dystrophy (DMD) when there is a confirmed mutation of the DMD gene that is amenable to exon 51 skipping. It was approved through the FDA Accelerated Approval Program based on an increase in dystrophin in skeletal muscles observed in some patients.

- A clinical benefit (e.g. prolongation of independent ambulation, improved quality of life, or prevention of disease progression and disability) of eteplirsen (Exondys 51) has not been established. [1]
  * In two small studies in a total of 12 patients, eteplirsen (Exondys 51) was shown to increase dystrophin levels. However, it has not been proven that an increase in dystrophin will translate to improved clinical outcomes, such as improved motor function.
  * The same studies failed to show that eteplirsen (Exondys 51) helped improve performance on a 6-minute walk test, which is a clinically relevant measure of ambulatory ability.

- The U.S. Centers for Disease Control and Prevention (CDC) has developed general management guidelines for DMD. The CDC recommends corticosteroids and supportive care to slow disease progression. These guidelines were published prior to the approval to eteplirsen (Exondys 51); thus, the use of eteplirsen (Exondys 51) for DMD has not yet been addressed. [2,3]
Clinical Efficacy

- Evidence regarding the effect of eteplirsen (Exondys 51) on dystrophin levels was inconclusive. Data is limited to a small, phase II trial (Study 201); an open-label, historically controlled, extension study (Study 202); and an ongoing, confirmatory phase III study (PROMOVI) with interim results. Although the preliminary evidence is promising, larger, well-controlled trials are needed to establish the safety and efficacy of eteplirsen (Exondys) in Duchenne muscular dystrophy (DMD).

- In the pivotal trials (Study 201/202), 12 patients were initially randomized to receive either placebo or eteplirsen (Exondys 51) 30 mg/kg/wk or 50 mg/kg/wk. There was a statistically significant percent increase (relative change) in dystrophin levels for the eteplirsen (Exondys 51) treatment arms at 48 weeks. [*]

* Dystrophin production is a surrogate biomarker of disease improvement with an unknown correlation to health outcomes. The use of dystrophin levels as a surrogate endpoint for DMD needs to be validated.

* Only a relative change in dystrophin was reported, which could overestimate the difference observed. An analysis on the absolute change in dystrophin levels was not reported. An absolute increase in dystrophin levels has not been correlated to improved ambulation or muscle function and a minimal clinically important difference in dystrophin levels has not yet been established.

* The muscle biopsies were processed and analyzed after unblinding occurred, which may have introduced bias into the results.

* The study included patients from Europe. Since supportive care was not well-documented, the results may have been confounded by different standards of care.

* The study became open-label after 12 weeks with subjects being compared to matched historical controls. Due to the observational nature of the trial, the cause and effect of eteplirsen (Exondys 51) on dystrophin production cannot be established.

* The FDA has acknowledged that findings from Study 201/202 are misleading and should be retracted. [5]

- After 180 weeks of treatment, the average dystrophin protein level in muscle tissue was found to be only 0.93% of the normal dystrophin level in found in healthy subjects. Experts have proposed that dystrophin levels greater than 10% of normal may be clinically meaningful; however, validation is needed. [1]

- In the ongoing confirmatory PROMOVI trial (open-label, observational), subjects treated with eteplirsen (Exondys 51) for 48 weeks had an average dystrophin level of 0.44% of the normal dystrophin level in a healthy subject vs. 0.16% at baseline (p < 0.05). The median increase after 48 weeks was only 0.1%. [1]

- Eteplirsen (Exondys 51) has not been shown to improve distance walked on a 6-minute walk test (6MWT), which was the primary endpoint in Study 201/202. [4,6]

* In Study 201, subjects in the eteplirsen (Exondys 51) 30 mg/kg/wk arm actually performed worse on the 6MWT versus placebo at both 24 and 48 weeks. This was attributed to two subjects who had rapid disease progression after enrollment.
* Study 202 showed no difference in performance on the 6MWT between the eteplirsen (Exondys 51) arm compared to matched historical controls.

- Eteplirsen (Exondys 51) has not yet been shown to improve any clinical outcomes such as quality of life, prolongation of independent ambulation, or prevention of disease progression and disability.

- The change in forced vital capacity (FVC), an exploratory endpoint in the previously mentioned trials, was assessed after trials were completed, and compared to historical controls. There was a slight improvement in FVC decline, a surrogate endpoint. However, because the trial was not controlled, and efficacy analysis was based on a historical control, the data is considered insufficient to establish clinical utility.

- The FDA Advisory Committee voted 7-6 against approval of eteplirsen (Exondys 51) for DMD due to the lack of substantial evidence from adequate and well-controlled studies that eteplirsen (Exondys 51) induces production of dystrophin to a level that is reasonably likely to predict clinical benefit. [5,7]

**Safety**

- Safety data for eteplirsen (Exondys 51) is based on four years of clinical trial experience but in a very limited population (n = 12).

- The most common adverse reaction of eteplirsen (Exondys 51) reported with an incidence of at least 35% were balance disorder and vomiting.

- Postmarketing safety studies on carcinogenicity are required in order to identify any unexpected serious risks associated with eteplirsen (Exondys 51).

| Table 1: Mutations Amenable to Exon 51 skipping |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 17-50           | 28-50           | 36-50           | 45-50           |
| 19-50           | 29-50           | 37-50           | 47-50           |
| 21-50           | 30-50           | 38-50           | 48-50           |
| 23-50           | 31-50           | 39-50           | 49-50           |
| 24-50           | 32-50           | 40-50           | 50              |
| 25-50           | 33-50           | 41-50           | 52              |
| 26-50           | 34-50           | 42-50           | 52-58           |
| 27-50           | 35-50           | 43-50           | 52-61           |
| 52-63           |                 |                 |                 |
Cross References

Eteplirsen for Duchenne Muscular Dystrophy, BlueCross BlueShield Association Medical Policy, 5.01.27, Issue April 2020.

Vyondys 53, golodirsen, Medication Policy Manual, Policy No. dru606

Viltepso, viltolarsen, Medication Policy Manual, Policy No. dru640

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<td>ICD-10</td>
<td>G71.0</td>
<td>Muscular dystrophy</td>
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</tbody>
</table>

References

1. Exondys 51 (eteplirsen) injection for intravenous use Cambridge, MA: Sarepta Therapeutics; Oct 2018
5. FDA CDER: Summary Review 206488Orig1s000. [cited Dec 14 2016]; Available from: http://www.accessdata.fda.gov/drugsatfda_docs/nda/2016/206488Orig1s000SumR.pdf
7. FDA CDER: Medical Review 206488Orig1s000. [cited Dec 14 2016]; Available from: http://www.accessdata.fda.gov/drugsatfda_docs/nda/2016/206488Orig1s000MedR.pdf

Revision History

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<td>1/20/2021</td>
<td>No criteria changes with this annual update.</td>
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<td>1/22/2020</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>12/13/2019</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<tr>
<td>1/31/2019</td>
<td>No criteria changes with this annual update. A table of mutations amenable to Exon 51 skipping was added to the appendix.</td>
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<td>2/16/2018</td>
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<td>01/13/2017</td>
<td>New policy</td>
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Medication Policy Manual

Topic: Spinraza, nusinersen

Date of Origin: February 17, 2017

Committee Approval Date: January 20, 2021

Effective Date: April 1, 2021

Next Review Date: January 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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Description

Nusinersen (Spinraza) is a medication used to treat certain types of spinal muscular atrophy (SMA), a rare genetic disorder that affects motor function. It is given by intrathecal (IT) injection directly into the spinal column.
Policy/Criteria

Most contracts require pre-authorization approval of nusinersen (Spinraza) prior to coverage.

I. Continuation of therapy (COT): Nusinersen (Spinraza) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

*Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.*

II. New starts (treatment-naïve patients): Nusinersen (Spinraza) may be considered medically necessary for treatment of spinal muscular atrophy (SMA) when there is clinical documentation (including, but not limited to chart notes) that criteria A through E below are met.

A. A diagnosis of classic SMA (5q SMA) is established by, or in consultation with a pediatric neuromuscular specialist (pediatric neurologist or rehabilitation doctor)

AND

B. One of the following:

1. Documentation showing SMA-associated symptoms before 12 years of age (also known as SMA type 1, type 2, or type 3)

OR

2. Presymptomatic SMA with confirmation of 2 or 3 copies of SMN2

AND

C. Genetic confirmation of a diagnosis of classic SMA, with a loss of, or defect in, the survival motor neuron (SMN) 1 gene.

AND

D. Prior to starting nusinersen (Spinraza) therapy, documentation showing baseline motor function, with objective function-based testing (such as with a HINE or CHOP-Intend score).

AND

E. Documentation of comprehensive SMA care, including physical therapy, respiratory care, and nutrition support as part of the patient’s care plan.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider nusinersen (Spinraza) to be a self-administered medication.

B. When pre-authorization is approved, nusinersen (Spinraza) may be authorized for up to twelve months, for a maximum of 4 doses (12 mg per dose) in a 64-day period, based on loading doses on Days 1, 15, 29, 59, then a maximum of 1 dose (12 mg per dose) in a 4-month period (based on dosing on days 179 and 299), for a total of 6 doses in a 299-day period.
C. After initial authorization, nusinersen (Spinraza) may be reauthorized for a maximum of three doses (12 mg per dose) every 12 months [based on dosing of 12 mg every 4 months]. Authorization shall be reviewed at least every 12 months when criteria a and b are met:

a. Documentation (including, but not limited to chart notes) is provided showing current medical necessity criteria are met, including comprehensive care by, or in consultation with, a neuromuscular specialist.

AND

b. Documentation (including, but not limited to chart notes) is provided showing that the medication is effective, including documentation of clinically significant improvement of motor function or stabilization of motor function loss, which must include clinical documentation of a physical assessment, motor function function-based testing, and need for medical intervention related to SMA symptoms, relative to baseline (and/or previous authorization period). Overall motor function must be improved/superior relative to that projected for the natural course of SMA.

IV. Nusinersen (Spinraza) is considered investigational when used for all other conditions or settings, including but not limited to:

A. Other types of classic SMA not specified above

B. Non-5q SMA (SMA due to genetic abnormalities other than on chromosome 5q)

C. Combination use with risdiplam (Evrysdi)

V. Nusinersen (Spinraza) is considered not medically necessary when used after a onasemnogene abeparvovec (Zolgensma) infusion.

Position Statement

Summary

- Nusinersen (Spinraza) is an antisense oligonucleotide (ASO), FDA approved for treatment of spinal muscle atrophy (SMA) due to a mutation of the SMN1 protein on the 5q chromosome ("classic SMA").

- SMA is a rare condition, with a genetic defect which leads to low the survival motor neuron (SMN) protein, progressive loss of motor neuron function, hypotonia, weakness, and chronic respiratory insufficiency.

* Children with the most severe form (SMA type 1) have symptoms before the age of 6 months and do not reach motor milestones (like sitting unassisted). SMA type 1 is also called “infantile SMA” or Werdnig-Hoffman disease.
Later onset SMA (such as SMA type 2 or 3) is diagnosed later (symptom onset after 6 months of age), when a child fails to meet a motor milestone. SMA type 2 is also called Dubowitz disease. SMA type 3 is also called Kugelberg-Welander disease.

- Genetic testing is required to confirm a diagnosis of classic SMA (5q SMA) and to rule out other causes of spinal muscular atrophy. Onset of SMA symptoms (such as failure to meet motor milestones) differentiates SMA types 1, 2, and 3. SMA type 1 has onset of symptoms prior to 6 months of age and is the most severe, progressive form of SMA.

- In clinical trials of young children (< 7 months of age) with SMA type 1 and presymptomatic SMA with 2 or 3 copies of SMN2, nusinersen (Spinraza) improved the ability to achieve motor milestones (such as head control, sitting, ability to kick in supine position, rolling, crawling, standing and walking), versus what is seen with the natural progression of SMA.

- In clinical trials of later-onset SMA (type 2 and type 3), nusinersen (Spinraza) improved motor function scores and slowed loss of motor function, versus what is seen with the natural progression of SMA.

- The safety and effectiveness of nusinersen (Spinraza) in conditions other than SMA types 1, 2, or 3 have not been established. Trials of nusinersen included patients up to 12 years of age, but not older. Therefore, the use of nusinersen for SMA type 4 is investigational.

- The use of nusinersen (Spinraza) after Zolgensma for patients with an incomplete response, defined as persistent SMA symptoms, may be effective. However, the use of nusinersen (Spinraza) for residual SMA symptoms after Zolgensma is considered not medically necessary. Given the very high cost of the Zolgensma and nusinersen (Spinraza) therapies, we are unable to cover both treatment options.

- Guidelines recommend aggressive, comprehensive supportive care.

- The recommended dose of nusinersen (Spinraza) is 12 mg injected intrathecally (IT), with four loading doses in 58 days (every 14 days for three doses, then in 30 days), then 12 mg IT every four months maintenance. The safety and effectiveness of higher doses have not been established. [1]

Disease Background [2-4]

- Spinal muscular atrophy (SMA) is a SMA is a rare, hereditary disease characterized by loss of motor neurons in the spinal cord and lower brain stem, and results in severe and progressive muscular atrophy, hypotonia, diffuse symmetric weakness, and restrictive lung disease. Patients with the most severe type of SMA can become paralyzed, never sit or walk, and have difficulty breathing and swallowing due to bulbar muscle weakness (requiring mechanical ventilation, gastrostomy tube enteral feeding, and nursing care).

- Classic SMA is caused by a loss of, or defect in, the survival motor neuron (SMN) 1 gene, with homozygous SMN1 exon 7 deletion and/or deletion and mutation on other alleles, resulting in inadequate production of SMN protein.
* This protein is needed for the proper maintenance of motor neurons. SMN2 may be present, but mostly produces SMN protein lacking in exon 7, a less stable protein, and unable to compensate for the lack of SMN1.

* SMN2 copies may be increased and produce SMN protein for milder forms of SMA (such as type 2 or 3).

- The incidence of SMA is approximately 4 to 10 per 100,000 live births (about 400 births in the U.S. per year).

- There is wide variability in age of onset, symptoms and rate of progression. Earlier onset is generally associated with more severe disease. The severity of SMA correlates with the amount of SMN protein.

- **SMA Type 1** (infantile SMA, Werdnig-Hoffman disease; “non-sitters”) is the most common and most severe form of SMA, with early symptom onset (< 6 months of age) and rapid progression to flaccid paralysis and restrictive progressive respiratory insufficiency. Most infants die without respiratory support within 1 year. Historic average time to death or full-time noninvasive ventilation (> 16 hours/day) is 13.5 months.

- **Later onset SMA** (type 2 and 3) patients produce greater amounts of SMN protein, have a later onset, and less severe. Outcome depends on severity of weakness at presentation; early onset correlates with greater weakness.

  * **SMA Type 2** (intermediate form, Dubowitz disease; “sitters”) present between 6 to 18 months, may reach motor milestone more slowly, can sit unassisted but lose this ability with time, and never walk.

  * **SMA Type 3** (mild form, Kugelberg-Welander disease; “standers”) presents after one year of age. Legs are affected more than arms. All walk but many lose ability to walk with time (highly variable).

**Clinical Efficacy**

- One phase 3 randomized, double-blinded, sham-controlled trial (ENDEAR) evaluated nusinersen (Spinraza) vs. sham injection in SMA1 in children started at less than 7 months of age. [4,5]

  * All subjects had onset of SMA symptoms prior to the age of 6 months and a diagnosis genetically confirmed.

  * Motor milestones were evaluated based on the Hammersmith Infant Neurological Exam (HINE) categories (in the modified section 2).

  * “Motor milestone responder” was defined as more categories of improvement than worsening, based on the modified section 2 of the HINE.

  * The proportion of subjects who were motor milestone responders was significantly higher with nusinersen (Spinraza) than placebo, based on a preplanned interim analysis. (n=82).

- One phase 3 randomized, double-blinded, sham-controlled trial (CHERISH) evaluated nusinersen (Spinraza) vs. sham injection (n=126) in later-onset SMA (types 2 and 3) in children started at 2 to 12 years of age. [4,7]
* All subjects had onset of SMA symptoms at > 6 months of age, were between the age of 2 and 12 years of age at the time of screening for the trial, and the diagnosis of SMA was genetically confirmed. All subjects could sit independently, but never had the ability to walk independently.

* Motor function was evaluated based on the Hammersmith functional motor scale expanded (HFMSE) score. A change from baseline of > 3 points was considered a responder.

* Subjects in the nusinersen (Spinraza) arm had a significantly higher change in HFMSE versus those in the placebo arm. (+5.9 points, placebo-subtracted). Key secondary endpoints that were statistically higher with nusinersen vs. placebo included percent of HFMSE responders (56.8% vs. 26.3%; p=0.006) and number of new motor milestones (+0.2 vs. -0.2; p<0.0001). However, more meaningful health outcomes of standing along and walking without assistance were not different between treatment arms, though secondary outcomes and not powered for statistical significance.

Interim efficacy and safety data from an ongoing phase 2 open-label trial evaluated nusinersen (Spinraza) in presymptomatic SMA in children with 2 or 3 copies on SMN2 and started at less than 6 weeks of age.

* At the time of the data cut, patients ranged from 25.7 to 45.4 months of age, with a median 2.9 years since the first administration.
  - All enrolled patients were alive, and none required permanent ventilation.
  - Mean CHOP INTEND scores were 62.1 and 63.4 for those with two copies and 3 copies of SMN2, respectively. A max score of 64 was achieved by 10/15 (66%) and 10/10 (100%) with two and three copies of SMN2, respectively.
  - All enrolled patients (25/25) achieved the ability to sit without support, 92% (23/25) achieved the ability to walk with assistance, and 88% (22/25) achieved the ability to walk independently.

Long-term extension trials are ongoing to establish the long-term safety and efficacy of nusinersen (Spinraza) for health outcomes such as ability to stand, walk, and need for invasive or non-invasive ventilation. [4]

Guidelines recommend maximizing aggressive multidisciplinary care, including orthopedic/rehabilitation, pulmonary, and gastrointestinal/nutrition care, along with psychological and social support. Therapy should be tailored to the patient functional level: nonsitter, sitter, or walker. [6]

**Investigational Uses**

- There is insufficient evidence to establish the efficacy of nusinersen (Spinraza) for the treatment of very late onset SMA (SMA type 4 or adult onset). Trials excluded patients over the age of 12.
Cross References

Nusinersen for Spinal Muscular Atrophy, BlueCross BlueShield Association Medical Policy, 5.75.15, Issue October 2018.

Zolgensma (onasemnogene abeparvovec-axgt), Medication Policy Manual, Policy No. dru591

Evrysdi, risdiplam, Medication Policy Manual, Policy No. dru647

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J2326</td>
<td>Injection, nusinersen, 0.1 mg</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G12.0</td>
<td>Infantile spinal muscular atrophy, type I [Werdnig-Hoffmann]</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G12.1</td>
<td>Other inherited spinal muscular atrophy Includes:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Adult form spinal muscular atrophy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Childhood form, type II spinal muscular atrophy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Juvenile form, type III spinal muscular atrophy [Kugelberg-Welander]</td>
</tr>
</tbody>
</table>

References

1. Spinraza (nusinersen) injection for intrathecal use [package insert]. Cambridge, MA: Biogen, Inc; October 2018


# Appendix 1 – SMA Subtypes

<table>
<thead>
<tr>
<th>Clinical Subtype</th>
<th>% of cases</th>
<th>Usual # SMN2 copies</th>
<th>Symptom onset</th>
<th>Life expectancy</th>
<th>Motor development a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 0</td>
<td>Very rare</td>
<td>1</td>
<td>In utero</td>
<td>Die shortly after birth</td>
<td>None</td>
</tr>
<tr>
<td>Type 1</td>
<td>58</td>
<td>2</td>
<td>≤ 6 months</td>
<td>≤ 24 months</td>
<td>Never able to sit unassisted.</td>
</tr>
<tr>
<td>Type 2</td>
<td>29</td>
<td>80% have 3 copies</td>
<td>≤ 18 months</td>
<td>70% alive at 25 years</td>
<td>Unable to walk without assistance.</td>
</tr>
<tr>
<td>Type 3</td>
<td>13</td>
<td>80% have 4 copies</td>
<td>18-36 months (3-10 years)</td>
<td>May be normal</td>
<td>Able to stand and to walk without assistance, but lose ability as the disease progresses</td>
</tr>
<tr>
<td>Type 4</td>
<td>&lt;5</td>
<td>≥4</td>
<td>20-30 years</td>
<td>Normal</td>
<td>Ambulatory. May experience mild muscle weakness</td>
</tr>
</tbody>
</table>

a Motor milestones: ability to kick, head control, rolling, sitting, crawling, and standing

Adapted from the Spinraza FDA Medical Review [5]
### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 1/20/2021     | • Broadened prescriber requirement to include non-pediatric neuromuscular specialists.  
• Added combination use with risdiplam (Evrysdi) to investigational uses. |
| 4/22/2020     | Add coverage criteria for presymptomatic SMA in patients with 2 or 3 copies of SMN2. Added COT language. |
| 4/25/2019     | Added the use of nusinersen (Spinraza) after onasemnogene abeparvovec (Zolgensma) infusion to be considered not medically necessary. |
| 1/31/2019     | Investigational uses (presymptomatic SMA) updated with this annual update. Clarified documentation requirements (no change to intent). |
| 2/16/2018     | No criteria changes with this annual update. |
| 7/14/2017     | Add coverage criteria for later-onset SMA (types 2 and 3). |
| 2/17/2017     | New policy |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**  
**Policy No:** dru488  
**Topic:** Pituitary Disorder Therapies  
- Isturisa, osilodrostat  
- Mycapssa, octreotide  
- Sandostatin LAR, octreotide  
- Signifor, pasireotide  
- Signifor LAR, pasireotide  
- Somatuline Depot, lanreotide  
- Somavert, pegvisomant  
**Date of Origin:** February 17, 2017  
**Committee Approval Date:** October 28, 2020  
**Effective Date:** January 1, 2021  
**Next Review Date:** October 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

The medications included in this policy are used to treat pituitary disorders, such as acromegaly and Cushing’s disease. These pituitary disorders are typically the result of excessive growth hormone or cortisol production.
Policy/Criteria

Most contracts require pre-authorization approval of pituitary disorder therapies prior to coverage.

I. **Continuation of therapy (COT):** Pituitary disorder therapies may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that the patient is established on this therapy AND one of the following situations applies (criterion A or B below):

   A. Prior to current health plan membership AND the medication was covered by another health plan.

      *Note: If the diagnosis is not listed in the coverage criteria below, written documentation of coverage must be provided, such as an approval letter or paid claim.*

   OR

   B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.

   *Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. These medications may be considered medically necessary when there is clinical documentation, (including, but not limited to chart notes), of use for one of the following indications, as listed in criterion A, B, C, or D below are met.
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Coverage Criteria</th>
<th>Coverable Drug(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Acromegaly</td>
<td>When criteria 1 and 2 are met: 1. Documented an inadequate response to surgery and/or radiation OR surgery/radiation is documented as not an option AND 2. [For lanreotide (Somatuline Depot), pasireotide LAR (Signifor LAR), octreotide (Mycapssa), and pegvisomant (Somavert) only]: Treatment with octreotide LAR (Sandostatin LAR Depot) has been ineffective, not tolerated, or is contraindicated.</td>
<td>• Lanreotide (Somatuline Depot) • Octreotide (Mycapssa) • Octreotide LAR (Sandostatin LAR Depot) • Pasireotide LAR (Signifor LAR) • pegvisomant (Somavert)</td>
</tr>
<tr>
<td>B. Carcinoid syndrome</td>
<td>Flushing and/or diarrhea due to a neuroendocrine tumor (NET), including carcinoid tumors (such as GI tract, lung, and thymus) and VIPoma</td>
<td>• Lanreotide (Somatuline Depot) • Octreotide LAR (Sandostatin LAR Depot)</td>
</tr>
<tr>
<td>C. Cushing’s disease</td>
<td>When criteria 1 and 2 are met: 1. Pituitary surgery is not an option or has not been curative. AND 2. At least one prior cortisol-blocking therapy was not effective unless all are contraindicated (see Appendix B).</td>
<td>• Osilodrostat (Isturisa) • Pasireotide (Signifor) • Pasireotide LAR (Signifor LAR)</td>
</tr>
<tr>
<td>D. Gastroenteropancreatic neuroendocrine tumors (GEP-NETs)</td>
<td>When unresectable, locally advanced or metastatic</td>
<td>• Lanreotide (Somatuline Depot) • Octreotide LAR (Sandostatin LAR Depot)</td>
</tr>
</tbody>
</table>

*a Such as gastrointestinal tract, lung, thymus, or pancreatic neuroendocrine tumors

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers octreotide (Mycapssa), osilodrostat (Isturisa) and pasireotide (Signifor) to be self-administered medications.

B. Regence Pharmacy Services does not consider lanreotide (Somatuline LAR), octreotide LAR (Sandostatin LAR), or pasireotide LAR (Signifor LAR) to be self-administered medications.

C. Regence Pharmacy Services does not consider pegvisomant (Somavert) to be self-administered medications for the first dose and considers pegvisomant (Somavert) to be self-administered after the first dose.

D. When pre-authorization is approved, pituitary disorder therapies may be authorized in the quantities defined in Table 1.

E. Authorization may be reviewed annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement. For pasireotide (Signifor), clinical documentation indicating that urinary free cortisol levels are within normal limits must be provided.

### Table 1: FDA-labeled Indications for Specific Pituitary Disorder Therapies

<table>
<thead>
<tr>
<th>Drug</th>
<th>FDA-labeled Indications and Associated Quantity Limits</th>
<th>Administration</th>
</tr>
</thead>
</table>
| Lanreotide (Somatuline Depot) [1] | **1. Acromegaly**  
   a. *Initial authorization:* Up to #1 lanreotide (Somatuline Depot) 90-mg kit every 4 weeks for 3 months.  
   b. *Continued authorization:* Up to #1 lanreotide (Somatuline Depot) 120-mg kit every 4 weeks.  
   **2. GEP-NET:** Up to #1 lanreotide (Somatuline Depot) 120-mg kit every 4 weeks.  
   **3. Carcinoid syndrome:** Up to #1 lanreotide (Somatuline Depot) 120-mg kit every 4 weeks. | Provider administered |
| Octreotide delayed release capsules (Mycapssa) | **1. Initial authorization:**  
   a. Up to 120 octreotide (Mycapssa) capsules per 30 days for 3 months  
   b. *Continued authorization:* Up to 120 octreotide (Mycapssa) capsules per 30 days | Self-administered |
| Octreotide LAR (Sandostatin LAR) | **1. Carcinoid tumors, VIPomas, or GEP-NET**  
   a. *Initial authorization:* Up to #1 octreotide LAR (Sandostatin LAR Depot) 20-mg kit every 4 weeks for 2 months.  
   b. *Continued authorization:* Up to #1 octreotide LAR (Sandostatin LAR Depot) 40 mg every 4 weeks. Doses | Provider administered |
Table 1: FDA-labeled Indications for Specific Pituitary Disorder Therapies

<table>
<thead>
<tr>
<th>Drug</th>
<th>FDA-labeled Indications and Associated Quantity Limits</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>greater than 40 mg every 4 weeks may be authorized in patients who continue to have symptoms despite receiving 40 mg every 4 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Acromegaly</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. <strong>Initial authorization</strong>: Up to #1 octreotide LAR (Sandostatin LAR Depot) 20-mg kit every 4 weeks for 3 months.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. <strong>Continued authorization</strong>: Up to #1 octreotide LAR (Sandostatin LAR Depot) 40 mg every 4 weeks.</td>
<td></td>
</tr>
<tr>
<td>Osilodrostat (Isturisa)</td>
<td>1. <strong>Initial authorization</strong>: Up to 60 mg daily based on a maximum dose of 30 mg twice daily.</td>
<td>Self-administered</td>
</tr>
<tr>
<td></td>
<td>2. <strong>Continued authorization</strong>: 60 mg daily based on a maximum dose of 30 mg twice daily.</td>
<td></td>
</tr>
<tr>
<td>Pasireotide (Signifor) [2]</td>
<td>1. <strong>Initial authorization</strong>: Up to #60 pasireotide (Signifor) 0.6-mg ampules every month for 2 months.</td>
<td>Self-administered</td>
</tr>
<tr>
<td></td>
<td>2. <strong>Continued authorization</strong>: Up to #60 pasireotide (Signifor) 0.9-mg ampules every month.</td>
<td></td>
</tr>
<tr>
<td>Pasireotide LAR (Signifor LAR) [3]</td>
<td>1. <strong>Acromegaly</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. <strong>Initial authorization</strong>: Up to #1 pasireotide LAR (Signifor LAR) 40-mg kit every 4 weeks for 3 months.</td>
<td>Provider administered</td>
</tr>
<tr>
<td></td>
<td>b. <strong>Continued authorization</strong>: Up to #1 pasireotide LAR (Signifor LAR) 60-mg kit every 4 weeks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Cushing’s Disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. <strong>Initial authorization</strong>: Up to #1 pasireotide LAR (Signifor LAR) 10-mg kit every 4 weeks for 3 months.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. <strong>Continued authorization</strong>: Up to #1 pasireotide LAR (Signifor LAR) 40-mg kit every 4 weeks.</td>
<td></td>
</tr>
<tr>
<td>Pegvisomant (Somavert) [4]</td>
<td>A one-time loading dose of pegvisomant (Somavert) 40 mg, followed by up to #30 pegvisomant (Somavert) 30-mg vials per month.</td>
<td>Self-administered (first dose under provider supervision)</td>
</tr>
</tbody>
</table>
Position Statement

Summary

- The intent of this policy is to allow for coverage of pituitary disorder therapies (as listed on page 1) for the FDA indications after use of step therapies (where appropriate, as detailed in the coverage criteria), for up to the doses supported in clinical trials.

- The medications included in this policy are either somatostatin analogs or growth hormone (GH) receptor antagonists.

  * Somatostatin is a natural hormone that lowers excessive GH levels. Somatostatin analogs [e.g. lanreotide, octreotide, and pasireotide] work by binding to somatostatin receptors, thereby suppressing GH secretion. They also inhibit adrenocorticotropic hormone (ACTH) secretion, which leads to decreased cortisol secretion.

  * GH receptor antagonists work by blocking endogenous GH from binding to GH receptors, which can lead to decreased serum insulin-like growth factor-I (IGF-I) concentrations.

- Pituitary disorder therapies have data from randomized, controlled trials to support their use in FDA-approved indications.

- Somatostatin analogs, such as octreotide (generic, Sandostatin LAR Depot), provide the best value for treatment of acromegaly. Guidelines recommend transsphenoidal surgery as first-line treatment for most patients with acromegaly. [5]


- Lanreotide (Somatuline Depot) is FDA-approved for gastrointestinal tract, lung, thymus, or pancreatic neuroendocrine tumors (GEP-NET), as well as for management of carcinoid syndrome (flushing and/or diarrhea) from neuroendocrine tumors (NET), including but not limited to pancreatic neuroendocrine tumors which secretes vasoactive intestinal peptide (VIP), also known as VIPoma. However, all three somatostatin analogs, including lower-cost octreotide (Sandostatin) and octreotide long-acting (Sandostatin LAR Depot), are recommended as recommended treatment options for GEP-NET, as well as for carcinoid syndrome (flushing and diarrhea associated with carcinoid tumors) by treatment guidelines. [7]

- Octreotide LAR (Sandostatin LAR Depot) is also FDA-approved for severe diarrhea and flushing episodes associated with metastatic carcinoid tumors, and profuse watery diarrhea associated with vasoactive intestinal peptide-secreting tumors (VIPomas).

- Octreotide LAR (Sandostatin LAR Depot) is not FDA-approved for locally advanced or metastatic gastroenteropancreatic neuroendocrine tumors GEP-NET; however, its use is supported by clinical trials, as well as standard of care guidelines [National Comprehensive Cancer Network (NCCN)].

- Octreotide delayed release (Mycapssa) is an oral formulation of octreotide FDA approved for the treatment of acromegaly. Unlike other forms of octreotide, it is only FDA approved for acromegaly.
- Osilodrostat (Isturisa) is a cortisol synthesis inhibitor used for the treatment of Cushing’s Disease. It blocks formation of cortisol by inhibiting 11-beta-hydroxylase.
- The recommended initial dosing for octreotide LAR (Sandostatin LAR Depot) for acromegaly or for symptomatic control in carcinoid tumors or VIPomas is 20 mg intramuscular injection given by a health care provider once every 4 weeks. Dosing adjustments should be made after two or three months, based on response and tolerability, up to a maximum dose of 40 mg every 4 weeks for acromegaly and 30 mg every 4 weeks for carcinoid tumors or VIPomas. Although the use of octreotide LAR (Sandostatin LAR Depot) for GEP-NET is not an FDA-approved use, the dose of 20 mg per month is a suggested starting dose per guidelines and expert input, to prevent excessive dosing and associated adverse events.

* The safety and efficacy of doses exceeding the maximum dosage in the FDA-approved labeling have not been established in clinical trials; however, the NCCN guidelines suggest higher doses may be of value in GEP-NET or VIPoma and carcinoid syndrome when starting doses are insufficient for disease control, as detailed in the coverage criteria.

- For other products, the safety and efficacy of doses exceeding the maximum dosage in the FDA-approved labeling have not been established in clinical trials.
- The safety and efficacy of conditions not included in the FDA-approved labeling have not been established in clinical trials.

Clinical Efficacy

ACROMEGALY

Octreotide
- A single, high quality meta-analysis found that in patients taking octreotide LAR (Sandostatin LAR Depot) who were not preselected for somatostatin analog responsiveness, 54% met GH efficacy criteria and 63% had IGF-I normalization. [16]
- Octreotide (Mycapssa) was evaluated in one placebo-controlled trial in patients with acromegaly. The study demonstrated that octreotide (Mycapssa) produced higher rates of IGF-1 normalization compared to placebo.

Lanreotide (Somatuline Depot)
- One double-blind, controlled study evaluated the efficacy of lanreotide (Somatuline Depot) 60 mg, 90 mg, and 120 mg compared to placebo in patients with acromegaly. [1]
  * After 4 weeks, 63% of patients in the pooled lanreotide (Somatuline Depot) arms had a > 50% decrease in mean GH compared to 0% in the placebo arm.
- One open-label uncontrolled trial evaluated the efficacy of lanreotide (Somatuline Depot) 90 mg on IGF-1 levels in patients with acromegaly. [1]
  * After 48 weeks, 43% of patients achieved normal age-adjusted IGF-1 concentrations. The mean IGF-1 concentration after treatment was 1.3 times the upper limit of normal (ULN) compared to 2.5 times ULN at baseline.
* The reduction in IGF-1 concentrations correlated with a corresponding decrease in mean GH concentrations. After 48 weeks, 38% of patients had both normal IGF-1 concentrations and a GH concentration of ≤ 2.5 ng/mL, and 27% of patients had both normal IGF-1 concentrations and a GH concentration of <1 ng/mL.

- A single, low quality meta-analysis evaluated head-to-head studies between octreotide LAR (Sandostatin LAR) and lanreotide (Somatuline Depot). [8]
  * A GH level < 2.5 μg/L was achieved in 65.3% of patients on octreotide LAR (Sandostatin LAR) versus 59.5% of patients on lanreotide (Somatuline Depot).
  * Normalization of IGF-I was achieved in 46.7% of patients on octreotide LAR (Sandostatin LAR) versus 52.7% of patients on lanreotide (Somatuline Depot).
  * Biochemical control was achieved in 46% of patients on octreotide LAR (Sandostatin LAR) versus 41.9% of patients on lanreotide (Somatuline Depot).

Pasireotide LAR (Signifor LAR)

- A head-to-head, superiority trial evaluated the efficacy of pasireotide LAR (Signifor LAR) 40mg compared to octreotide LAR (Sandostatin LAR) over a 12-month period in treatment-naïve patients with acromegaly. [10]
  * The primary endpoint was a biochemical response (GH < 2.5 μg/L and normalized IGF-I adjusted for age and gender). However, current guidelines target a GH level < 1 μg/L.
  * Biochemical response was achieved in 31.3% of patients in the pasireotide LAR (Signifor LAR) arm and 19.2% of patients in the octreotide LAR (Sandostatin LAR) arm. However, the maximum dose of octreotide LAR (Sandostatin LAR Depot) used in the trial was only 30 mg compared to the FDA-approved maximum of 40 mg.

- A randomized, controlled trial evaluated the efficacy of two strengths of pasireotide LAR (Signifor LAR) compared to continued treatment with octreotide LAR (Sandostatin LAR) and lanreotide (Somatuline LAR) over a 6 month period in patients who were unable to achieve biochemical control with either octreotide LAR (Sandostatin LAR) or lanreotide (Somatuline LAR). [12]
  * The primary endpoint was a biochemical response (GH < 2.5 μg/L and normalized IGF-I adjusted for age and gender). Current guidelines target a GH level < 1 μg/L.
  * Biochemical response was achieved in 15% of patients in the pasireotide LAR (Signifor LAR) 40mg arm, 20% of patients in the pasireotide LAR (Signifor LAR) 60mg arm, and 0% of patients in the active control arm.
  * The maximum dose of octreotide LAR (Sandostatin LAR Depot) used in the trial was only 30 mg compared to the FDA-approved maximum of 40 mg.

Pegvisomant (Somavert)

- A randomized, double-blinded, placebo-controlled, 12-week study evaluated the safety and efficacy of pegvisomant (Somavert) 10 mg, 15 mg, or 20 mg in patients with acromegaly. [4,14]
* The mean serum IGF-I concentration decreased from baseline by 4.0%, 26.7%, 50.1%, and 62.5% in the placebo, 10 mg, 15 mg, and 20 mg arms, respectively. This difference was significant in all treatment arms compared to placebo.
* Normalization of serum IGF-I concentrations were achieved in 10%, 54%, 81%, and 89% of subjects in the placebo, 10 mg, 15 mg, and 20 mg arms, respectively.
* In patients treated with pegvisomant (Somavert) 15 mg or 20 mg daily, there were significant decreases in ring size, soft-tissue swelling, the degree of excessive perspiration, and fatigue.
* The total score for signs and symptoms of acromegaly decreased significantly in all groups receiving pegvisomant (Somavert).

Guidelines
- The Endocrine Society clinical guidelines for acromegaly recommend transsphenoidal surgery as first-line treatment for most patients. [5]
* Pharmacological treatment with a somatostatin analog or pegvisomant (Somavert) is recommended as the initial adjuvant medical therapy.
* In patients with mild disease, a trial of a dopamine agonist, such as cabergoline, is recommended as the initial adjuvant medical therapy.
* Patients with an inadequate response to a somatostatin analog should try adding cabergoline or pegvisomant (Somavert).

GASTROENTEROPANCREATIC NEUROENDOCRINE TUMORS (GEP-NET)
- The CLARINET trial (multicenter, randomized, double-blind, controlled) evaluated the efficacy of lanreotide (Somatuline Depot) 120 mg in patients with GEP-NETs compared to placebo. [1,9]
* Patients were required to have non-functioning tumors without hormone-related symptoms. The majority (69%) of the study population had grade 1 tumors.
* The primary endpoint was progression-free survival (PFS).
* Patients in the lanreotide (Somatuline Depot) arm had a statistically significant improvement in PFS compared placebo (median not reached vs. median of 18.0 months).
- The PROMID trial showed an improvement in time to tumor progression in neuroendocrine tumors of the midgut with octreotide LAR (Sandostatin LAR Depot) compared to placebo (14.3 months vs. 6 months). [18]
- The National Comprehensive Cancer Network (NCCN) Neuroendocrine Tumors guideline list octreotide LAR (Sandostatin LAR Depot) as category 2A recommendation for gastrointestinal tract, lung, thymus, or pancreatic neuroendocrine tumors (GEP-NET). [6]
- Additional prospective randomized controlled studies are needed to establish the safety and efficacy of above label dosing for octreotide LAR (Sandostatin LAR Depot).
CUSHING’S DISEASE (CD)

Pasireotide (Signifor)

- There is low quality evidence that pasireotide (Signifor) has any clinically relevant effect on improving symptoms in patients with CD. The effects of pasireotide (Signifor) on long-term consequences of CD, including cardiovascular outcomes, bone loss, or death, have not been studied.

- The evidence of efficacy for pasireotide (Signifor) in CD is of poor quality because it is based on a single, unblinded, uncontrolled (no comparator) trial.[2,10,11]

  * The trial enrolled adult patients with confirmed CD (pituitary tumor) who had recurrent or persistent disease despite tumor resection or who were not candidates for surgery. Subjects enrolled in the trial had a mean urinary free cortisol (UFC) level of at least 1.5 times the upper limit of normal.
  * The trial evaluated three different doses of pasireotide (Signifor): 0.3 mg, 0.6 mg, or 0.9 mg subcutaneously twice daily.
  * The primary endpoint of the study was the proportion of subjects with normalized UFC levels at month 6. Additional endpoints included proportion of subjects with normalized UFC levels at month 3 and 12.
  * At month 3, 16% and 28% of subjects had normalization of UFC levels in the 0.6 mg and 0.9 mg treatment arms, respectively. At month 6, 16% and 29% had normalized UFC levels, respectively; and at month 12, UFC levels had normalized in 13% and 25% of subjects, respectively.
  * Subjects with lower baseline UFC levels were more likely to achieve normalization of UFC.

Pasireotide LAR (Signifor LAR)

- A phase 3 trial evaluated the efficacy of pasireotide LAR (Signifor LAR) 10mg compared to pasireotide LAR (Signifor LAR) 30mg every 4 weeks for 12 months in persistent, recurrent, or non-surgical patients with Cushing’s disease.[13]

  * The primary endpoint was the proportion of patients in each group with a mean urinary free cortisol (mUFC) concentration of less than or equal to the ULN at month 7.
  * The primary efficacy endpoint was met by 31 (41.9%) of patients in the 10 mg group and 31 (40.8%) of patients in the 30 mg group.
  * The maximum dose of pasireotide LAR (Signifor LAR) used in the trial was 30 mg and 40mg in the 10 mg and 30 mg treatment arms, respectively.

Osilodrostat (Isturisa)

- Osilodrostat (Isturisa) was evaluated in one phase 3 randomized, withdrawal study known as LINC-3. The study included patients with CD who previously had pituitary surgery or irradiation or were newly diagnosed and who refused surgery or were not surgical candidate.
- The primary endpoint was the proportion of patients who achieved normal (UFC) levels at the end of the randomized withdrawal period, without the need for uptitration.

- Results showed that osilodrostat improves the proportion of patients who achieve a normal UFC level compared to placebo. However, additional study is warranted as study was relatively short term and used a different dosing schedule than the FDA approved, recommend dose.

**SYMPTOMATIC CONTROL IN CARCINOID (NET) TUMORS or VIPomas**

- A 6-month, double-blind trial of malignant carcinoid syndrome evaluated the efficacy of octreotide LAR (Sandostatin LAR Depot) 10 mg, 20 mg, or 30 mg. [17]

  * Overall, mean daily stool frequency was decreased with octreotide LAR (Sandostatin LAR Depot). The average number of daily stools decreased from ~4.5 stools per day at baseline to ~2.5 stools per day.

  * Mean daily flushing episodes also decreased with octreotide LAR (Sandostatin LAR Depot). The average number of daily flushing episodes decreased from 3.0-6.1 episodes per day at baseline to 0.6-1.0 episodes per day.

  * The reductions observed with octreotide LAR (Sandostatin LAR Depot) are within the range reported in the published literature for patients treated with octreotide (generic) subcutaneous injection.

**Safety**

- Pituitary disorder therapies may increase blood glucose levels or increase glucose tolerance. In patients with diabetes, blood glucose levels should be monitored, and anti-diabetic medications should be optimized prior to starting therapy.

- Pasireotide LAR (Signifor LAR) was associated with higher rates of hyperglycemia (29% vs. 8%), diabetes mellitus (19% vs. 4%), and increased HbA1c (6% vs 2%) compared to octreotide LAR (Sandostatin LAR Depot). [10] Similar differences were observed when comparing pasireotide LAR (Signifor LAR) with lanreotide (Somatuline Depot). [12]

- Pasireotide (Signifor, Signifor LAR) is not recommended in patients with severe liver impairment. [2,3]

- Baseline liver function tests [e.g. alanine aminotransferase (ALT), aspartate aminotransferase (AST), total bilirubin (TBIL), and alkaline phosphatase (ALP)] should be less than 3 times the upper limit of normal before starting pegvisomant (Somavert). [4]

**Dosing**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosing Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lanreotide (Somatuline Depot) [1]</td>
<td>- Acromegaly: 90 mg subcutaneously once every 4 weeks.</td>
</tr>
<tr>
<td></td>
<td>* After 3 months of treatment, the dose of lanreotide (Somatuline Depot) may be adjusted based on GH and IGF-1 levels.</td>
</tr>
<tr>
<td>Drug</td>
<td>Dosing Schedule</td>
</tr>
<tr>
<td>------</td>
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</tr>
</tbody>
</table>
| **Administered by a trained health care professional**<br>**Octreotide (Mycapssa)** [20] | - Acromegaly:  
  * 40 mg daily, administered as 20 mg twice daily.  
  * The dose may be adjusted based on GH and IGF-1 levels.  
  * The maximum dose is 80 mg daily. |
| **Octreotide LAR (Sandostatin LAR)** [17] | - Acromegaly:  
  * 20 mg intramuscularly once every 4 weeks.  
  * The recommended dosage range is 10 mg to 40 mg every 4 weeks  
  * After 3 months of treatment, the dose may be adjusted based on GH and IGF-1 levels.  
- Diarrhea associated with carcinoid tumors or VIPomas:  
  * 20 mg intramuscularly once every 4 weeks.  
  * The recommended dosage range is 10 mg to 30 mg every 4 weeks  
  * After 2 months of treatment, the dose may be adjusted based on symptomatic control.  
- GEP-NETs: 20 mg to 30 mg intramuscularly once every 4 weeks.  
- For patients with GEP NETS, carcinoid tumors, or VIPomas, the dose may be further increased as needed based on symptom control. Short acting octreotide may also be added to octreotide LAR (Sandostatin) for rapid relief of symptoms or breakthrough symptoms. [7] |
| **Pasireotide (Signifor)** [2] | - Starting dose for acromegaly: 0.6 or 0.9 mg subcutaneously twice a day.  
- The dose of pasireotide (Signifor) should be adjusted based on response and tolerability.  
- The dosage range of pasireotide (Signifor) is 0.3 to 0.9 mg twice daily.  
- Prior to initiating pasireotide LAR (Signifor LAR) therapy, it is recommended that the following baseline evaluations are obtained: fasting plasma glucose, hemoglobin A1c, liver tests, serum potassium and magnesium, an electrocardiogram, and a gallbladder ultrasound. |
| **Pasireotide LAR (Signifor LAR)** [3] | - Acromegaly: 40 mg intramuscularly once every 4 weeks.  
  * The dose of pasireotide LAR (Signifor LAR) may be increased to a maximum of 60 mg once every 4 weeks in patients who do not have normalized GH or IGF-1 levels after 3 months of treatment or decreased to 20 mg once every 4 weeks based on tolerability. |
### Table 2: Recommended Dosing and Administration for Pituitary Disorder Therapies

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosing Schedule</th>
</tr>
</thead>
</table>
| **Administered by a trained health care professional** | * Prior to initiating pasireotide LAR (Signifor LAR) therapy, it is recommended that the following baseline evaluations are obtained: fasting plasma glucose, hemoglobin A1c, liver tests, serum potassium and magnesium, and an electrocardiogram.  
  - Cushing’s disease: 10 mg intramuscularly once every 4 weeks.  
  * Based on FDA label, the dose of pasireotide LAR (Signifor LAR) may be increased following 4 months of treatment in patients who have not normalized 24-hour urinary free cortisol (UFC). Based on tolerability, the dose may be increased to a maximum of 40 mg once every 4 weeks.  
  * Prior to initiating pasireotide LAR (Signifor LAR) therapy, it is recommended that the following baseline evaluations are obtained: fasting plasma glucose, hemoglobin A1c, liver tests, serum potassium and magnesium, and an electrocardiogram. |
| Pegvisomant (Somavert) [4] | - Loading dose: 40 mg subcutaneously done under physician supervision.  
  - Pegvisomant (Somavert) 10 mg subcutaneously once daily.  
  - The daily dose of pegvisomant (Somavert) should be adjusted in 5 mg increments until serum IGF-I concentrations are maintained within normal range. IGF-I levels should be measured every 4 to 6 weeks. Doses should not be adjusted based on GH levels or signs/symptoms of acromegaly.  
  - The dosage range of pegvisomant (Somavert) is 10 m to 30 mg daily.  
  - Prior to initiating pegvisomant (Somavert) therapy, it is recommended that baseline liver function tests are obtained. If AST or ALT is greater than 3 times the upper limit of normal, a work-up should be performed prior to pegvisomant (Somavert) administration. |

### Appendix B: Oral Medications Used in the Management of Cushing’s Disease

- Ketoconazole (generic)*a  
- Metyrapone (Metopirone) a  
- Mitotane (Lysodren) a

* Mechanism of action is via inhibitor of cortisol biosynthesis

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J1930</td>
<td>Injection, lanreotide (Somatuline Depot), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2502</td>
<td>Injection, pasireotide long acting (Signifor LAR)</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2353</td>
<td>Injection, octreotide, depot form for intramuscular injection (Sandostatin LAR), 1 mg</td>
</tr>
</tbody>
</table>
References


2. Signifor (pasireotide) [prescribing information]. East Hanover, NJ: Novartis Pharmaceuticals; April 2019.

3. Signifor LAR (pasireotide) [prescribing information]. East Hanover, NJ: Novartis Pharmaceuticals; April 2019.


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 10/28/2020    | • Added octreotide (Sandostatin LAR) to policy and archived standalone octreotide policy (formerly dru489).  
• Added octreotide delayed release capsules (Mycapssa) as a new medication for acromegaly.  
• Added osilodrostat (Isturisa) as a new medication for Cushing’s Disease.  
• Added continuation of therapy (COT) criteria to policy. No change to intent of policy. 
• Clarified that the dose of octreotide LAR (Sandostatin LAR) may be increased to greater than 40 mg every 4 weeks in patients who have continued to have symptoms on standard and require additional symptom control. |
| 10/23/2019    | Clarification of policy criteria wording, for operational clarity (no change to coverage intent with this annual update). |
| 10/19/2018    | Added coverage of Signifor LAR for Cushing’s disease consistent with its new FDA-approved indication. |
| 10/13/2017    | Added coverage of Somatuline Depot for carcinoid syndrome in adults consistent with its new FDA-approved indication. |
| 02/17/2017    | New policy (effective 7/1/17) |

**Drug names identified in this policy are the trademarks of their respective owners**
Medication Policy Manual

Topic: Sandostatin LAR Depot, octreotide long-acting release

Date of Origin: June 1, 2017

Committee Approval Date: October 23, 2019

Next Review Date: October 2020

Effective Date: January 1, 2020

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Octreotide long-acting release (Sandostatin LAR Depot) is a somatostatin analog indicated for acromegaly, diarrhea or flushing associated with metastatic carcinoid tumors, and watery diarrhea associated with vasoactive intestinal peptide tumors (VIPomas). The long-acting release (LAR) formulation is given intramuscularly once every four weeks.

This policy and the coverage criteria below do not apply to octreotide (generic). Octreotide (generic) does not require pre-authorization.
Policy/Criteria

I. Most contracts require pre-authorization approval of octreotide LAR (Sandostatin LAR Depot) prior to coverage. Octreotide LAR (Sandostatin LAR Depot) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) of use for one of the following indications, as listed in criteria A, B, or C below.

A. Unresectable, locally advanced or metastatic gastroenteropancreatic neuroendocrine tumors (GEP-NETs) [e.g. gastrointestinal tract, lung, thymus, or pancreatic neuroendocrine tumors].

OR

B. Carcinoid tumors (metastatic) OR vasoactive intestinal peptide tumors (VIPomas), with documented associated severe diarrhea and/or flushing episodes

OR

C. Acromegaly

II. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider octreotide LAR (Sandostatin LAR Depot) to be a self-administered medication.

B. When pre-authorization is approved, octreotide LAR (Sandostatin LAR Depot) may be authorized in the following quantities:

1. Carcinoid tumors, VIPomas, or GEP-NET
   a. **Initial authorization:** Up to #1 octreotide LAR (Sandostatin LAR Depot) 20-mg kit every 4 weeks for 2 months.
   b. **Continued authorization:** Up to #1 octreotide LAR (Sandostatin LAR Depot) 40 mg every 4 weeks.

2. Acromegaly
   a. **Initial authorization:** Up to #1 octreotide LAR (Sandostatin LAR Depot) 20-mg kit every 4 weeks for 3 months.
   b. **Continued authorization:** Up to #1 octreotide LAR (Sandostatin LAR Depot) 40 mg every 4 weeks.

C. Authorization may be reviewed annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

III. Octreotide LAR (Sandostatin LAR Depot) is considered investigational when used for all other conditions, including meningiomas, portal hypertension, and other cancer settings.
Position Statement

Summary

- Somatostatin is a natural hormone that lowers excessive growth hormone (GH) levels. Somatostatin analogs, such as octreotide LAR (Sandostatin LAR Depot), work by binding to somatostatin receptors, thereby suppressing GH secretion. They also inhibit adrenocorticotropic hormone (ACTH) secretion, which leads to decreased cortisol secretion.

- The intent of this policy is to allow for coverage of octreotide LAR (Sandostatin LAR Depot) for the indications where it has been shown to be safe and effective, including both FDA indications (as detailed in the coverage criteria) and those uses supported in standard of care guidelines (GEP-NET), for up to the doses supported in clinical trials.

* Somatostatin analogs, such as octreotide (generic, Sandostatin LAR Depot), is FDA-approved for treatment of acromegaly.

* Octreotide LAR (Sandostatin LAR Depot) is also FDA-approved for severe diarrhea and flushing episodes associated with metastatic carcinoid tumors, and profuse watery diarrhea associated with vasoactive intestinal peptide-secreting tumors (VIPomas).

* Octreotide LAR (Sandostatin LAR Depot) is not FDA-approved for locally advanced or metastatic gastroenteropancreatic neuroendocrine tumors GEP-NET; however, its use is supported by clinical trials, as well as standard of care guidelines [National Comprehensive Cancer Network (NCCN)].

- The recommended initial dosing for octreotide LAR (Sandostatin LAR Depot) for acromegaly or for symptomatic control in carcinoid tumors or VIPomas is 20 mg intramuscular injection given by a health care provider once every 4 weeks. Dosing adjustments should be made after two or three months, based on response and tolerability, up to a maximum dose of 40 mg every 4 weeks for acromegaly and 30 mg every 4 weeks for carcinoid tumors or VIPomas. Although the use of octreotide LAR (Sandostatin LAR Depot) for GEP-NET is not a FDA-approved use, the dose of 20 mg per month is a suggested starting dose per guidelines and expert input, to prevent excessive dosing and associated adverse events.

- The safety and efficacy of doses exceeding the maximum dosage in the FDA-approved labeling have not been established in clinical trials; however, the NCCN guidelines suggest higher doses may be of value in GEP-NET or VIPoma and carcinoid syndrome when starting doses are insufficient for disease control, as detailed in the coverage criteria.
Clinical Efficacy

ACROMEGALY

- A single, high quality meta-analysis found that in patients taking octreotide LAR (Sandostatin LAR Depot) who were not preselected for somatostatin analog responsiveness, 54% met GH efficacy criteria and 63% had IGF-I normalization. [2]

- A single, low quality meta-analysis evaluated head-to-head studies between octreotide LAR (Sandostatin LAR Depot) and lanreotide (Somatuline Depot). [3]
  * A GH level < 2.5 μg/L was achieved in 65.3% of patients on octreotide LAR (Sandostatin LAR Depot) versus 59.5% of patients on lanreotide (Somatuline Depot).
  * Normalization of IGF-I was achieved in 46.7% of patients on octreotide LAR (Sandostatin LAR Depot) versus 52.7% of patients on lanreotide (Somatuline Depot).
  * Biochemical control was achieved in 46% of patients on octreotide LAR (Sandostatin LAR Depot) versus 41.9% of patients on lanreotide (Somatuline Depot).

- The Endocrine Society clinical guidelines for acromegaly recommend transsphenoidal surgery as first-line treatment for most patients. [1]
  * Pharmacological treatment with a somatostatin analog or pegvisomant (Somavert) is recommended as the initial adjuvant medical therapy.
  * In patients with mild disease, a trial of a dopamine agonist, such as cabergoline, is recommended as the initial adjuvant medical therapy.
  * Patients with an inadequate response to a somatostatin analog should try adding cabergoline or pegvisomant (Somavert).

SYMPTOMATIC CONTROL IN CARCINOID (NET) TUMORS or VIPomas

- A 6-month, double-blind trial of malignant carcinoid syndrome evaluated the efficacy of octreotide LAR (Sandostatin LAR Depot) 10 mg, 20 mg, or 30 mg. [4]
  * Overall, mean daily stool frequency was decreased with octreotide LAR (Sandostatin LAR Depot). The average number of daily stools decreased from ~4.5 stools per day at baseline to ~2.5 stools per day.
  * Mean daily flushing episodes also decreased with octreotide LAR (Sandostatin LAR Depot). The average number of daily flushing episodes decreased from 3.0-6.1 episodes per day at baseline to 0.6-1.0 episodes per day.
  * The reductions observed with octreotide LAR (Sandostatin LAR Depot) are within the range reported in the published literature for patients treated with octreotide (generic) subcutaneous injection.

GASTROENTEROPANCREATIC NEUROENDOCRINE TUMORS (GEP-NETs)

- The PROMID trial showed an improvement in time to tumor progression in neuroendocrine tumors of the midgut with octreotide LAR (Sandostatin LAR Depot) compared to placebo (14.3 months vs. 6 months). [5]
The National Comprehensive Cancer Network (NCCN) Neuroendocrine Tumors guideline list octreotide LAR (Sandostatin LAR Depot) as category 2A recommendation for gastrointestinal tract, lung, thymus, or pancreatic neuroendocrine tumors (GEP-NET). [6]

A single systematic review showed that dose escalation up to 120 mg every 4 weeks may be considered for symptom control and tumor progression in neuroendocrine tumors; however, there was a lack of quantitative measurements of symptom severity and mainly supported by expert opinion. [6]

Additional prospective randomized controlled studies are needed to establish the safety and efficacy of above label dosing for octreotide LAR (Sandostatin LAR Depot).

**Investigational Uses**

Although there is interest in using octreotide LAR (Sandostatin LAR Depot) in a variety of other cancer settings (not listed above), there is currently no published randomized trials to support the efficacy and safety of octreotide LAR (Sandostatin LAR Depot) in these settings.

The safety and efficacy of octreotide LAR (Sandostatin LAR Depot) has not been established in portal hypertension. [7]

The dose escalation of octreotide LAR (Sandostatin LAR) in excess of 30 mg every 4 weeks in the treatment of carcinoid tumors or GEP-NET for somatostatin analogue resistance is considered investigational. While trials of telotristat (Xermelo) included a significant portion of patients who used octreotide LAR (Sandostatin LAR) in excess of 30 mg per 4 weeks, there is insufficient evidence to establish any benefit from dosing in excess of 30 mg every 4 weeks. As such, the use is considered investigational and cannot be covered. [8]

**Safety** [4]

The most common adverse reactions associated with octreotide LAR (Somatostatin LAR Depot) in acromegaly were diarrhea, cholelithiasis, abdominal pain, and flatulence.

The most common adverse reactions associated with octreotide LAR (Somatostatin LAR Depot) in carcinoid tumors and VIPomas were back pain, fatigue, headache, abdominal pain, nausea, and dizziness.

Similarly to other somatostatin analogs, when octreotide LAR (Somatostatin LAR Depot) treatment is initiated, blood glucose levels should be monitored and anti-diabetic therapies should be adjusted accordingly.

**Dosing**

Patients should be maintained on octreotide (generic) subcutaneous injection for at least 2 weeks to determine tolerance prior to initiating octreotide LAR (Sandostatin LAR Depot).

The recommended dosing for octreotide LAR (Sandostatin LAR Depot) in acromegaly is as follows: [4]

* Octreotide LAR (Sandostatin LAR Depot) 20 mg intramuscularly once every 4 weeks.
* After 3 months of treatment, the dose of octreotide LAR (Sandostatin LAR Depot) may be adjusted based on GH and IGF-1 levels.
* The recommended dosage range is octreotide LAR (Sandostatin LAR Depot) 10 mg to 40 mg.

- The recommended dosing for octreotide LAR (Sandostatin LAR Depot) in diarrhea associated with carcinoid tumors or VIPomas is as follows: [4]
  * Octreotide LAR (Sandostatin LAR Depot) 20 mg intramuscularly once every 4 weeks.
  * After 2 months of treatment, the dose of octreotide LAR (Sandostatin LAR Depot) may be adjusted based on symptomatic control.
  * The recommended dosage range is octreotide LAR (Sandostatin LAR Depot) 10 mg to 30 mg.

- The recommended dosing for octreotide LAR (Sandostatin LAR Depot) in GEP-NETs is 20 mg to 30 mg intramuscularly once every 4 weeks. [6]

- Octreotide LAR (Sandostatin LAR Depot) should be administered by a trained healthcare professional.

### Cross References

<table>
<thead>
<tr>
<th>Cross References</th>
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<tbody>
<tr>
<td>Pituitary Disorder Therapies, Medication Policy Manual, Policy No. dru488</td>
</tr>
</tbody>
</table>

### Codes

<table>
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<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J2353</td>
<td>Injection, octreotide, depot form for intramuscular injection, 1 mg</td>
</tr>
</tbody>
</table>

### References


These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 10/23/2019    | - Clarification of policy criteria wording, for operational clarity (no change to coverage intent with this annual update).  
- Update quantity limit for GEP-NET. |
| 10/19/2018    | Simplification of coverage criteria (remove step therapy with octreotide immediate-release) and removal of thymic malignancy as an Investigational Use. |
| 10/13/2017    | Clarification of covered diagnoses. No changes to coverage criteria with this annual update. |
| 02/17/2017    | New policy (effective 7/1/17) |

*Drug names identified in this policy are the trademarks of their respective owners*
Medication Policy Manual

Policy No: dru499

Topic: Bavencio, avelumab

Date of Origin: July 14, 2017

Committee Approval Date: April 21, 2021

Next Review Date: January 2022

Effective Date: May 15, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Avelumab (Bavencio) is an intravenously administered immunotherapy used in the management of certain types of cancer. It belongs to a class of medications called programmed death-ligand (PD-L1) blocking antibodies.
Policy/Criteria
Most contracts require pre-authorization approval of avelumab (Bavencio) prior to coverage.

I. Continuation of therapy (COT): Avelumab (Bavencio) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim. 
   AND 
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND 
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Avelumab (Bavencio) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, or C below is met.

A. A diagnosis of Merkel cell carcinoma, metastatic, when criteria 1. and 2. below are met:
   1. Avelumab (Bavencio) will be used as monotherapy.
   AND
   2. No prior use of programmed death receptor-1 blocking antibody therapy (PD-1 inhibitors) or programmed death-ligand 1 blocking antibody therapy (PD-L1 inhibitors). [see Appendix 1]

September 1, 2022

dru499.6

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.
Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
OR

B. A diagnosis of urothelial carcinoma (bladder cancer), locally advanced or metastatic, when criteria 1, 2, and 3 below are met:
   1. Prior treatment with platinum-containing chemotherapy.
   AND
   2. Avelumab (Bavencio) will be used as monotherapy.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR

C. A diagnosis of renal cell carcinoma (RCC), recurrent or metastatic, when criteria 1 through 4 below are met:
   1. The tumor has clear cell histology.
   AND
   2. There has been no prior systemic therapy for advanced disease.
   AND
   3. Avelumab (Bavencio) will be administered in combination with axitinib (Inlyta).
   AND
   4. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy services does not consider avelumab (Bavencio) to be a self-administered medication.

B. When pre-authorization is approved, avelumab (Bavencio) will be authorized in quantities of up to 800 mg every 2 weeks, until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Avelumab (Bavencio) is considered investigational when used for all other conditions, including but not limited to:

A. Gastric or gastroesophageal junction (GEJ) adenocarcinoma
B. Non-small cell lung cancer (NSCLC)
C. Renal cell carcinoma (RCC), when used in the subsequent-line treatment setting.
Position Statement

Summary

- Avelumab (Bavencio) is a programmed death-ligand 1 (PD-L1) blocking antibody (immunotherapy) used in the treatment of several types of cancer.

- The intent of this policy is to cover avelumab (Bavencio) in settings where it has been studied and shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.
  * Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of cemiplimab (Libtayo) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

  * It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- National Comprehensive Cancer Network (NCCN) guidelines recommend avelumab (Bavencio) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.

- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.

- Avelumab (Bavencio) is intravenously administered in a dose of 800 mg every two weeks, until disease progression.

- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using avelumab (Bavencio) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

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Clinical Efficacy

MERKEL CELL CARCINOMA (MCC) [1,2]

- Avelumab (Bavencio) is approved for the treatment of metastatic MCC, regardless of prior therapy.
- FDA approval of avelumab (Bavencio) in MCC was based on results from a single-group, open-label (observational) trial that evaluated it in patients with stage IV (metastatic) MCC that had progressed after cytotoxic chemotherapy.
  * All subjects in the study had progressed on at least one prior line of chemotherapy in the metastatic setting.
  * The study reported overall tumor response rate (ORR) as the primary endpoint. The clinical meaningfulness of this endpoint is unclear, as it has not been shown to accurately predict any clinically relevant outcome.
  * An overall ORR of 33% was reported in the trial. The duration of response ranged from 2.8 months to upwards of 23 months.
- Approval in treatment-naïve MCC patients was extrapolated from this initial study. However, there is now an ongoing study prospectively evaluating avelumab (Bavencio) in the front-line MCC setting.
- The relative safety and effectiveness of avelumab (Bavencio) in MCC is unknown as it has not been compared with either best supportive care, or with any other therapy. Chemotherapy historically has been the standard approach for advanced MCC. Although MCC appears to be chemosensitive, the duration of response is limited. The impact of chemotherapy on survival in patients with metastatic MCC is unclear.[3]

UROTHELIAL CANCER (BLADDER CANCER)

- Avelumab (Bavencio) is approved in two bladder cancer settings: [4]
  * As a subsequent-line therapy when there has been progression of locally advanced or metastatic disease after front-line platinum-containing chemotherapy.
  * As switch maintenance when there has been no progression of disease after front-line platinum-containing chemotherapy.
- The initial FDA approval for avelumab (Bavencio) in bladder cancer was based on a phase 1, non-blinded, single-arm cohort from a larger study in a variety of solid tumors. [5,6]
  * The study evaluated ORR as the primary endpoint. ORR is not a validated surrogate endpoint. It has not been shown to accurately predict any clinically relevant benefit in locally advanced or metastatic bladder cancer.
  * The reported ORR was 14.8% and the duration of response was not estimable.
- To date, avelumab (Bavencio) has only been studied after platinum-based therapy.
- More recently, avelumab (Bavencio) was approved as switch maintenance therapy for locally advanced or metastatic bladder cancer after successful treatment with platinum-containing chemotherapy [JAVELIN Bladder 100 study]. [7]
Subjects in the trial were initially treated with four to six cycles of a platinum plus gemcitabine. If the tumor decreased in size or did not progress on the initial chemotherapy, subjects were given avelumab (Bavencio) or best supportive care until disease progression.

Subjects in the avelumab (Bavencio) treatment arm were noted to have improved survival relative to those who received best supportive care with a median OS of 21.4 months and 14.3 months, respectively.

Platinum-based chemotherapy is the standard of care for front-line treatment of advanced or metastatic bladder cancer as it is associated with improved OS. Ideal sequencing of therapies in bladder cancer is still under investigation. Because only 43% of subjects in the chemotherapy only arm of the JAVELIN Bladder 100 study received a PD-1 or PD-L1 inhibitor after disease progression, it cannot be determined whether avelumab (Bavencio) maintenance is superior to waiting until disease progression before beginning anti-PD-1/PD-L1 therapy.

The NCCN bladder cancer guideline lists several different anti-PD-1/PD-L1 medications, including avelumab (Bavencio), among its recommendations for bladder cancer in several different disease settings. [8]

RENAL CELL CARCINOMA (RCC)

Avelumab (Bavencio) is approved for the treatment of advanced (unresectable or metastatic) renal cell carcinoma (RCC) as a front-line therapy when used in combination with axitinib (Inlyta).

The approval was based on interim results from a phase 3, open-label (not blinded), randomized controlled trial (RCT) in patients with advanced, clear cell RCC in the front-line treatment setting, comparing the combination of avelumab (Bavencio) plus axitinib (Inlyta) with sunitinib (Sutent) monotherapy [JAVELIN Renal 101 study]. [4,9] Sunitinib (Sutent), like axitinib (Inlyta), is an orally administered tyrosine kinase inhibitor.

Median progression-free survival (PFS) was greater in the combination treatment arm [13.8 months and 8.4 months in the avelumab (Bavencio)/axitinib (Inlyta) and sunitinib (Sutent) treatment arms, respectively].

There was no difference in overall survival (OS) detected between groups at the time of the interim analysis. It is not known if avelumab (Bavencio)/axitinib (Inlyta) improves any clinical outcome at this time.

There was a slight increase in grade 3 and 4 adverse effects in the combination arm. Additionally, 11% of subjects in the combination arm had immune-mediated AEs that required 40 mg or more per day of prednisone.

There is no evidence supporting the use of avelumab (Bavencio) in subsequent-line RCC settings, or as a monotherapy for RCC.

The NCCN kidney cancer guideline lists the combination of avelumab (Bavencio) and axitinib (Inlyta) among several recommended regimens when used as a first-line treatment for advanced, clear cell RCC. [10]

The ideal sequencing of immunotherapies [such as avelumab (Bavencio), nivolumab (Opdivo), pembrolizumab (Keytruda), and ipilimumab (Yervoy)] and tyrosine kinase
inhibitor (TKI) therapies [axitinib (Inlyta), cabozantinib (Cabometyx), lenvatinib (Lenvima), pazopanib (Votrient), and sunitinib (Sutent)] in advanced RCC has not been established. Further study is needed.

**Investigational Uses**
- Avelumab (Bavencio) is actively being studied to determine if there is benefit in treating other types of cancers including gastric or gastroesophageal junction (GEJ) adenocarcinoma (including esophageal) and NSCLC. To date, there are no studies establishing a clinical benefit in these settings.
- There is an early phase, published study evaluating avelumab (Bavencio) in NSCLC. However, larger, well-controlled studies are necessary to establish the safety and effectiveness of avelumab (Bavencio) in this setting.

**Dosing**
- Avelumab (Bavencio) is given as a 60-minute infusion in a dose of 800 mg every two weeks. It is continued until disease progression or unacceptable toxicity.
- In RCC, it is given in combination with axitinib (Inlyta) 5 mg orally twice daily.

**Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies**

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<thead>
<tr>
<th>Programmed death receptor-1 (PD-1) inhibitors</th>
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<tr>
<td>cemiplimab (Libtayo)</td>
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<td>nivolumab (Opdivo)</td>
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<td>pembrolizumab (Keytruda)</td>
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<tr>
<th>Programmed death-ligand 1 (PD-L1) inhibitor</th>
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<tr>
<td>atezolizumab (Tecentriq)</td>
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<tr>
<td>avelumab (Bavencio)</td>
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<tr>
<td>durvalumab (Imfinzi)</td>
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</table>

* Or as listed on the FDA.gov website

**Cross References**
- Inlyta, axitinib, Medication Policy Manual, Policy No. dru273
- Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500
- Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367
- Libtayo, cemiplimab, Medication Policy Manual, Policy No. dru565
- Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390
- Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463
- Yervoy, ipilimumab, Medication Policy Manual, Policy No. dru238
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<tr>
<td>HCPCS</td>
<td>J9023</td>
<td>Injection, avelumab (Bavencio), 10 mg</td>
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</table>

**References**


Revision History

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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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| 4/21/2021       | - Simplified and broadened the bladder cancer criteria by replacing the prior list of covered treatment settings with ‘Prior treatment with platinum-containing chemotherapy’. This change allows for use in the new switch maintenance setting as well as in subsequent-line treatment settings.  
- Under renal cell carcinoma (RCC) the requirement for ‘clear cell’ histology was moved from the disease description to a separate numbered criterion to make sure it is not missed when applying coverage criteria (no change to intent of original criteria).  
- COT language was updated (no change to intent of coverage criteria). |
| 1/22/2020       | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).                                                                                                                   |
| 10/23/2019      | No criteria changes with this annual update.                                                                                                                                                             |
| 7/24/2019       | - Updated policy with criteria for coverage in front-line RCC, which is a new FDA-approved indication  
- Updated with standard policy language (does not change intent). (effective 8/15/2019)                                                                                                             |
| 10/30/2018      | Update dosing to flat 800 mg dosing, to reflect FDA label change.                                                                                                                                      |
| 04/20/2018      | No changes with this annual update. Clarified authorization is valid “until disease progression” (no change to intent).                                                                                  |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Topic:** Imfinzi, durvalumab

**Date of Origin:** September 8, 2017

**Committee Approval Date:** April 21, 2021

**Next Review Date:** January 2022

**Effective Date:** May 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Durvalumab (Imfinzi) is an intravenously administered immunotherapy used in the treatment of several different cancers. It belongs to a class of medications called programmed death-ligand (PD-L1) blocking antibodies.
Policy/Criteria

Most contracts require pre-authorization approval of durvalumab (Imfinzi) prior to coverage.

I. Continuation of therapy (COT): Durvalumab (Imfinzi) may be considered medically necessary for COT when criteria A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Durvalumab (Imfinzi) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below is met.

OR

A. A diagnosis of non-small cell lung cancer (NSCLC), locally advanced (unresectable stage III), when all criteria 1 through 4 below are met.
   1. The patient has received 2 or more cycles of definitive concurrent platinum-containing chemotherapy and radiation therapy.
AND
2. There has been no disease progression during or following platinum-containing chemotherapy and radiation therapy.

AND
3. Durvalumab (Imfinzi) is used as monotherapy.

AND
4. No prior use of programmed death receptor-1 blocking antibody therapy (PD-1 inhibitors) or programmed death-ligand 1 blocking antibody therapy (PD-L1 inhibitors). (see Appendix 1)

OR

B. A diagnosis of small cell lung cancer, extensive-stage (ES-SCLC), when criteria 1 through 3 below are met:
   1. No prior systemic treatment for extensive stage SCLC (ES-SCLC) [not including any systemic treatment for early/limited-stage SCLC].
   
   AND
   2. Durvalumab (Imfinzi) is initiated in combination with etoposide and either cisplatin or carboplatin.
   
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy. (see Appendix 1)

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy services does not consider durvalumab (Imfinzi) to be a self-administered medication.
   
   B. When prior authorization is approved, durvalumab (Imfinzi) will be authorized in quantities as follow for the following durations:
      1. **NSCLC:** Up to two, 10 mg/kg infusions every 28 days OR 1500 mg every 4 weeks until disease progression or for up to a maximum of 12 months.
      2. **ES-SCLC:** Up to 1500 mg every 3 weeks for up to 6 cycles then 1500 mg every 4 weeks until disease progression.

   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Durvalumab (Imfinzi) is considered investigational when used for all other conditions, including but not limited to:
   A. Non-small cell lung cancer (NSCLC) [other than specified in the criteria above].
   B. Head and Neck cancer (HNSCC).
   C. Urothelial carcinoma (bladder cancer)
Position Statement

Summary

- Durvalumab (Imfinzi) is a programmed death-ligand (PD-L1) blocking antibody (immunotherapy) used in the treatment of several different cancers.

- The intent of this policy is to cover durvalumab (Imfinzi) in settings where it has been studied and shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

* Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of durvalumab (Imfinzi) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).

* It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- It has not yet been determined if durvalumab (Imfinzi) provides clinically meaningful benefit in any of the conditions in which it has been approved as current studies have used surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- National Comprehensive Cancer Network (NCCN) guidelines recommend durvalumab (Imfinzi) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.

- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.

- Durvalumab (Imfinzi) is intravenously administered until disease progression, per the dosing limits in the coverage criteria.

- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using durvalumab (Imfinzi) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.
- The FDA indication for urothelial carcinoma (bladder cancer) was withdrawn after additional, confirmatory trials failed to demonstrate a health outcome for this indication. The use of durvalumab (Imfinzi) for bladder cancer is considered investigational.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

Non-Small Cell Lung Cancer (NSCLC):
- Durvalumab (Imfinzi) was approved for use in unresectable, locally advanced (stage III) NSCLC that has not progressed after concurrent chemoradiation therapy. The FDA approval was based on one phase 3, randomized, double-blind, placebo-controlled trial that reported overall survival (OS) benefit at an interim analysis. [1]
  * Durvalumab (Imfinzi) was given as monotherapy and was continued until disease progression (or until intolerable adverse effects) for a maximum of 12 months.
  * The 24-month overall survival rate was 66.3% (95% confidence interval [CI], 61.7 to 70.4) in the durvalumab (Imfinzi) group, compared with 55.6% (95% CI, 48.9 to 61.8) in the placebo group (p=0.005).
  * Median OS was not reached in the durvalumab (Imfinzi) group compared to 28.7 months in the placebo group (HR 0.68, 95% CI 0.53 to 0.87, p = 0.0025).
- It is unknown if there are any differences in safety or effectiveness relative to other therapies because the study did not employ any active comparators.
- Platinum-based chemotherapy is the standard of care for the first-line treatment of advanced NSCLC in tumors without driver mutations. However, the use of immuno-therapy is becoming quickly adopted as an alternative in many first and second-line metastatic NSCLC settings.
- The National Comprehensive Cancer Network (NCCN) non-small cell lung cancer treatment guideline lists durvalumab (Imfinzi) as consolidation therapy when there is no progression after 2 or more cycles of definitive concurrent platinum-based chemoradiation. [2]

Extensive-Stage Small Cell Lung Cancer (ES-SCLC):
- The FDA approval in SCLC was based on a single phase 3 randomized controlled trial that compared durvalumab (Imfinzi) plus chemotherapy (etoposide plus carboplatin or cisplatin) with chemotherapy alone (placebo arm) in patients with untreated ES-SCLC. [3,4]
  * Subjects included in the study had no prior treatment for ES-SCLC. If they had prior treatment for limited-stage SCLC, they had to have been treated with
curative intent and must have had a treatment-free interval of at least 6 months since their last chemotherapy, radiotherapy, or chemoradiotherapy.

* Patients with untreated or symptomatic CNS metastasis were not included in the study.

* Durvalumab (Imfinzi) was initiated with chemotherapy (given for four cycles) and was then continued as maintenance until disease progression.

* After a median follow-up of 25.1 months. Median OS was 12.9 months [95% CI: 11.3 to 14.7] and 10.5 months [95% CI: 9.3 to 11.2], respectively.

  - There was a small, but statistically significant difference in OS that favored patients in the durvalumab (Imfinzi) group.

  - National Comprehensive Cancer Center (NCCN) guidelines list durvalumab (Imfinzi) in combination with chemotherapy among its recommendations for initial therapy for extensive-stage SCLC. [5]

  - Optimal sequencing of chemotherapy and immunotherapy in SCLC has not been studied. Sequential use of immunotherapies (e.g., PD-1/PD-L1 inhibitors) is not supported by current evidence.

**Investigational Uses**

- **Urothelial carcinoma (UC, bladder cancer)**

  * Durvalumab (Imfinzi) initially received Accelerated approval as a subsequent therapy (after disease progression on a cisplatin-based chemotherapy regimen) for unresectable or metastatic bladder cancer based on tumor response rate in a non-comparative (single-arm), observational study.

  * A subsequent phase 3 trial (DANUBE study) intended to confirm the efficacy of durvalumab (Imfinzi) in the bladder cancer setting failed to demonstrate an OS advantage over standard chemotherapy. Based on this failed confirmatory trial the manufacturer voluntarily withdrew the bladder cancer indication. Because there is no proven net health benefit relative to the standard of care, the use of durvalumab (Imfinzi) for bladder cancer is considered investigational. [6]

- **NSCLC, metastatic**: A phase 3 study (MYSTIC study) comparing durvalumab (Imfinzi) with front-line standard of care chemotherapy in patients with treatment-naïve metastatic NSCLC failed to meet its primary endpoint of improved OS. Because there is no proven net health benefit relative to the standard of care, the use of durvalumab (Imfinzi) for metastatic NSCLC is considered investigational. [7]

- **Head and neck squamous cell cancer (HNSCC), recurrent or metastatic**: Durvalumab (Imfinzi) failed to show an OS benefit relative to standard of care in a phase 3 trial (EAGLE study) as a front-line therapy for PD-L1-positive HNSCC. Because there is no proven net health benefit relative to the standard of care, the use of durvalumab (Imfinzi) for recurrent or metastatic HNSCC is considered investigational. [8]

- There are also ongoing studies designed to evaluate durvalumab (Imfinzi) in other solid tumors. [9]
Dosing and Administration \(^{[10]}\)

- For NSCLC, the dose of durvalumab (Imfinzi) is 10 mg/kg every 2 weeks or as 1500 mg every 4 weeks. It is given until disease progression, or for up to a maximum of 12 months, as consolidation therapy.

- For ES-SCLC the dose of durvalumab (Imfinzi) is 1500 mg every 3 weeks for 4-6 cycles followed by 1500 mg every 4 weeks as a single agent.

**Appendix 1: FDA-Approved PD-1 and PD-L1 Blocking Monoclonal Antibody Therapies\(^{a}\)**

*Programmed death receptor-1 (PD-1) inhibitors*

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<tr>
<td>Cemiplimab-rwlc (Libtayo)</td>
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<td>Nivolumab (Opdivo)</td>
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<td>Pembrolizumab (Keytruda)</td>
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*Programmed death-ligand 1 (PD-L1) inhibitor*

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<th>Therapy</th>
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<tr>
<td>Atezolizumab (Tecentriq)</td>
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<tr>
<td>Avelumab (Bavencio)</td>
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<tr>
<td>Durvalumab (Imfinzi)</td>
</tr>
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</table>

\(^{a}\) Or as listed on the FDA.gov website.

**Cross References**

Molecular Analysis for Targeted Therapy of Non-Small Cell Lung Cancer (NSCLC), Medical Policy Manual, Genetic Testing Policy No. 56

Bavencio, avelumab, Medication Policy Manual, Policy No. dru499

Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367

Libtayo, cemiplimab, Medication Policy Manual, Policy No. dru565

Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390

Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463

**Codes**

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<tr>
<td>HCPCS</td>
<td>J9173</td>
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**References**


6. Imfinzi [Prescribing Information]. Wilmington, DE: AstraZeneca Pharmaceuticals LP; June 2020

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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| 4/21/2021     | • Removed coverage criteria for urothelial carcinoma (bladder cancer) as FDA indication withdrawn due to failed confirmatory trial. Use in urothelial carcinoma (bladder cancer) moved to ‘investigational’ section.  
• Simplified coverage criteria for ES-SCLC to facilitate administration of the policy (removed criterion describing allowed prior treatments in limited-stage SCLC and removed criterion stating member should not have steroid-dependent CNS metastasis).  
• Standardized language relating to ‘No prior PD-1/PD-L1 therapy’ so it is consistent across the PD-1/PD-L1 set of policies.  
• Updated ‘Quantity Limitations’ section to reflect newly approved dosing parameters for NSCLC (added ‘up to 1500 mg every 4 weeks’).  
• COT language updated (No change to intent of coverage criteria) |
| 10/28/2020    | Added coverage criteria for use in extensive-stage small cell lung cancer, a newly FDA approved indication. |
| 1/22/2020     | • Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
• The allowed duration of therapy for urothelial carcinoma was corrected (may be given until progression of disease). |
| 10/23/2019    | No criteria changes with this annual update |
| 6/15/2018     | Added coverage criteria use in non-small cell lung cancer |
| 9/8/2017      | New policy |

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru504

Topic: Brineura, cerliponase alfa

Date of Origin: July 14, 2017

Committee Approval Date: April 21, 2020

Next Review: April 2022

Effective Date: July 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Cerliponase alfa (Brineura) is used to treat pediatric patients with late infantile neuronal ceroid lipofuscinosis type 2 (CLN2). CLN2 is an ultra-rare inherited disorder caused by the deficiency of the lysosomal enzyme tripeptidyl peptidase.[1] It is administered once every other week directly into the brain by intracerebroventricular infusion.
Policy/Criteria
Most contracts require pre-authorization approval of cerliponase alfa (Brineura) prior to coverage.

I. Continuation of therapy (COT): Cerliponase alfa (Brineura) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Cerliponase alfa (Brineura) may be considered medically necessary in patients when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C, below are met.

A. A diagnosis of late infantile neuronal ceroid lipofuscinosis type 2 (CLN2) established by a pediatric neurologist, pediatric epileptologist, or geneticist.

AND

B. Patient is symptomatic (e.g., changes in gait, falls, or difficulty ambulating).

AND

C. The goal of treatment is to slow loss of ambulation.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider cerliponase alfa (Brineura) to be a self-administered medication.

B. When pre-authorization is approved, cerliponase alfa (Brineura) will be authorized in quantities of 300 mg every two weeks, up to 26 infusions per year.

C. Authorization shall be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Cerliponase alfa (Brineura) is considered investigational when used for all other conditions.

Position Statement

Summary
- Cerliponase alfa (Brineura) is a hydrolytic lysosomal N-terminal tripeptidyl peptidase used to slow the loss of ambulation in symptomatic pediatric patients with late infantile neuronal ceroid lipofuscinosis type 2 (CLN2).
- CLN2 is an ultra-rare inherited disorder caused by the deficiency of the lysosomal enzyme tripeptidyl peptidase.
- There are no other treatment options for CLN2. Prior to the approval of cerliponase alfa (Brineura), treatment was limited to symptomatic and supportive care. [2]
- Cerliponase alfa (Brineura) has not been studied for any other indications, other than to slow the loss of ambulation in CLN2. Therefore, its use for any other condition is considered investigational.

Clinical Efficacy
- The efficacy of cerliponase alfa was evaluated in a prospective, non-randomized, open-label, single-arm clinical study with extension trial in symptomatic pediatric patients (N=23) aged 3 to 8 years with CLN2 disease, confirmed by TPP1 deficiency. [3,4]
- The primary endpoint was a 2-point decline or an unreversed score of 0 in the Motor domain of the CLN2 rating scale (0, profoundly impaired, to 3, grossly normal) at 48 weeks. [3,4]
- In the matched patient analysis, 94% of patients treated with cerliponase alfa demonstrated fewer declines in the Motor domain of the CLN2 score compared to 76% of patients in the natural history cohort after 48 weeks of follow-up. [3,4]
- During the extension phase, after 96 weeks of treatment 94% of patients treated with cerliponase alfa did not experience a decline in the Motor domain of the CLN2 Clinical Rating Scale compared to 35% of matched patients in the natural history cohort. [3,4]
- Limitations to the trial include the use of an outcome measure with a subjective endpoint in which the clinical meaningfulness of a change in score is unknown. The observational study lacks design to demonstrate cause and effect; however, the historical control group was required to meet the same baseline inclusion criteria as the treatment group and a matched patient analysis was performed to minimize bias. Although the sample size appears small, CLN2 is an ultra-rare disease and a large study population was identified and accurately represents the overall population. A randomized, placebo-controlled trial would be unethical, and appropriate measures were taken to increase the validity of the evidence where feasible given the complexity and severity of the disease.

- There are no treatment guidelines for CLN2. Management of CLN2 is symptomatic and palliative. Treatment is directed at mitigating manifestations of the disease: seizures, sleep-related problems, malnutrition, gastroesophageal reflux, pneumonia, hypersalivation, hyperactivity and behavior problems, psychosis, anxiety, spasticity, Parkinsonian symptoms, and dystonia. \(^{[2,5]}\)

### Safety

The most commonly reported adverse reactions (incidence of 8% or more) reported with cerliponase alfa (Brineura) include pyrexia, ECG abnormalities, decreased CSF protein, vomiting, seizures, hypersensitivity, increased CSF protein, hematoma, headache, irritability, pleocytosis, device-related infection, bradycardia, feeling jittery, and hypotension. The commonly reported adverse event during post approval use of cerliponase alfa (Brineura) was bacterial meningitis. \(^{[3]}\)

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<td>HCPCS</td>
<td>J0567</td>
<td>Injection, cerliponase alfa (Brineura), 1 mg</td>
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### References

Revision History

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<th>Revision Date</th>
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<tr>
<td>4/21/2021</td>
<td>Updated COT language. No other changes with this annual update.</td>
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<tr>
<td>04/22/2020</td>
<td>No criteria changes with this annual update. Added COT language</td>
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<tr>
<td>04/25/2019</td>
<td>No criteria changes with this annual update.</td>
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<td>02/16/2018</td>
<td>No criteria changes with this annual update.</td>
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<td>07/14/2017</td>
<td>New Policy</td>
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Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Policy No:** dru510  
**Date of Origin:** August 11, 2017

**Topic:**  
- Radicava, edaravone  
- Radicava ORS, edaravone oral suspension

**Committee Approval Date:** June 17, 2022  
**Next Review Date:** December 2022

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Radicava and Radicava ORS (edaravone) are medications for the treatment of amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig’s disease.
Policy/Criteria

Most contracts require pre-authorization approval of Radicava and Radicava ORS (edaravone)

I. **Continuation of therapy (COT):** Radicava and Radicava ORS (edaravone) may be considered medically necessary for COT when full policy criteria below are met, including reauthorization criteria and quantity limit. Diagnostic criteria as well as the BASELINE functional status, including the standard functional testing, prior to initiation of edaravone (Radicava) must be provided.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Radicava and Radicava ORS (edaravone) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through F below are met.

A. **For provider-administered (IV) Radicava (edaravone) only:** Site of care administration requirements are met. [refer to Regence Pharmacy Services Medication Policy Manual, Site of Care Review, dru408]

AND

B. A diagnosis of **amyotrophic lateral sclerosis (ALS),** established by or in consultation with specialist in neurology or ALS.

AND

C. Disease duration of two years or less.

AND

D. Currently taking riluzole, unless riluzole has been ineffective, contraindicated, or not tolerated.

AND

E. The patient has a score of greater than or equal to two on all items of the ALS functional rating scale (ALSFRS-R) at the start of treatment.

AND

F. Normal respiratory function [defined as a forced vital capacity (FVC) ≥80%] at the start of treatment

III. **Administration, Quantity Limitations, and Authorization Period**

A. Regence Pharmacy Services considers intravenous Radicava (edaravone) coverable only under the medical benefit (as a provider-administered medication).

B. Regence Pharmacy Services considers Radicava ORS (edaravone oral solution) coverable only under the pharmacy benefit (as a self-administered medication).

C. When pre-authorization is approved, intravenous Radicava (edaravone) will be authorized in quantities of up to 134 infusions per year, based on the prescribing information.
D. When pre-authorization is approved, Radicava ORS (edaravone oral solution) will be authorized as follows:

**Initial Cycle:** Up to 2 starter packs (70ml) will be authorized for the initial 28 days of treatment, based on daily dosing for 14 days, followed by a 14-day drug-free period.

**Subsequent Cycles (maintenance):** Up to 50ml will be authorized per 28 days, based on daily dosing for 10 days out of 14-day periods, followed by 14-day drug-free periods

E. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement, as demonstrated by stabilization or improvement in baseline ALSFRS-R or other measures of function.

IV. Edaravone (Radicava) is considered investigational when used for all other conditions, including but not limited to:

A. Acute ischemic stroke

B. In patients with ALS and an FVC of less than 80% at the start of treatment.

Position Statement

**Summary**

- ALS is a neurodegenerative disease characterized by loss of motor neurons in the spinal cord, brainstem, and motor cortex. As the disease progresses individuals lose strength and the ability to move their arms, legs, and body. Progression of the disease also leads to a decline in respiratory function.

- Edaravone (Radicava) is an intravenously infused medication indicated for the treatment of amyotrophic lateral sclerosis (ALS).

- The intent of the criteria is to limit use to patients with a diagnosis of ALS, for the indications, regimen, and dose for which it has been studied, as detailed in the coverage criteria (diagnosed in the past two years and are currently taking or have failed riluzole). Patients must also have a forced vital capacity of at least 80% at baseline and a score of at least 2 on all 12 items of ALSFRS-R, a measure of functional impairment.

- Edaravone (Radicava) demonstrated efficacy in ALS patients with normal respiratory function in one randomized, placebo-controlled phase 3 study.

  * All patients had a diagnosis of definite or probably ALS and a disease duration of less than two years.

  * A score of at least 2 on all 12 items of ALSFRS-R. The ALSFRS-R is a validated measure of functional impairment. Scores of at least 2 indicate that functionality of most activities of daily living.
* Patients were required to have a forced vital capacity (FVC) of at least 80% at baseline.
* Most patients in the study were taking riluzole at baseline.

- While edaravone (Radicava) is approved for ALS, it has only been shown to be beneficial in a subset of patients.
- Edaravone (Radicava) did not show any benefit in an earlier phase 3 study that was conducted in a broader population that include patients with more advanced respiratory dysfunction (FVC <80% at the start of treatment). FVC may be measured in an upright or supine position.
- American Academy of Neurology (AAN) guidelines recommend that riluzole should be offered to slow disease progression. The guidelines have not been updated to include edaravone (Radicava).
- The recommended dosing for the initial treatment cycle of edaravone (Radicava) is 60 mg IV given daily for 14 days followed by a 14-day drug free period. In subsequent treatment cycles edaravone (Radicava) is given at a dose of 60 mg IV for 10 days followed by a 14-day drug free period. The safety and effectiveness of higher doses have not been established.
- The safety and effectiveness of edaravone (Radicava) in conditions other than ALS have not been established.

Clinical Efficacy [1,2]
- One phase 3 randomized, controlled trial (RCT) was used to support FDA approval.
  * The study was conducted entirely in Japan and included newly diagnosed patients with ALS.
    ▪ All patients had a diagnosis of definite or probably ALS and a disease duration of less than two years.
    ▪ A score of at least 2 on all 12 items of ALSFRS-R. The ALSFRS-R is a validated measure of functional impairment, scores of at least 2 indicate that functionality is maintained for most activities of daily living.
    ▪ Patients were required to have a forced vital capacity (FVC) of at least 80% at baseline.
    ▪ Most patients in the study were taking riluzole at baseline.
  * The primary endpoint was change in the revised ALS functional rating scale (ALSFRS-R), a validated rating instrument for monitoring the progression of disability in patients with ALS.
  * Edaravone (Radicava) was shown to slow the reduction in ALSFRS-R compared to placebo.
- Edaravone (Radicava) did not demonstrate benefit compared to placebo in an earlier study which was conducted in a broader population. However, a post-hoc analysis identified that there may have been benefit in patients with preserved respiratory function, thus a second phase 3 study was designed to investigate efficacy in this narrow population and support regulatory approval.
Guidelines

- American Academy of Neurology (AAN) guidelines recommend that riluzole be offered to slow disease progression in patients with ALS. The AAN concluded that riluzole has a modest beneficial effect in slowing disease progression and cohort studies suggest riluzole may be associated with longer survival. [3]
- AAN guidelines have not been updated to include edaravone (Radicava).

Revised ALS Functional Rating Scale (ALSFRS-R) [4]

- The ALSFRS-R is a questionnaire-based scale that assesses the ability of patients to perform activities of daily living (ADLs). Scores range from 0 (worst) to 48 (normal)
- It consists of 12 functional domains and each item is rated from 0 to 4, with higher scores indicating better function.
- The 12 domains are speech, salivation, swallowing, handwriting, cutting food, dressing and hygiene, turning in bed, walking, climbing stairs, orthopnea, and respiratory insufficiency.

Investigational Uses

- Although edaravone (Radicava) has been studied for the treatment of acute ischemic stroke, the evidence is currently preliminary. Larger, well controlled trials are needed to establish the safety and efficacy of edaravone (Radicava) in this setting. [5,6]
- Edaravone (Radicava) has only efficacy in patients with an FVC of greater than or equal to 80% at the start of treatment. [1,2] Additional studies are needed to establish efficacy in patients with lower baseline FVC.

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<td>HCPCS</td>
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Cross References

Infused Medication Alternative Site of Care, Medication Policy Manual, Policy No. dru408
References


### Revision History

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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>6/17/2022</td>
<td>Added Radicava ORS (edaravone oral solution) to policy.</td>
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<tr>
<td>1/20/2021</td>
<td>No criteria changes with this annual review.</td>
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</table>
| 01/22/2020    | - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
                - Clarify reauthorization criteria (including use of ALSFRS-R scoring or other measure of function). |
| 1/31/2019     | Updated reauthorization criteria to clarify that clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.  
                Clarified initial documentation requirements (no change to intent). |
| 2/19/2018     | - Clarified that the patient must have a score of greater than or equal to 2 on the ALSFRS-R at the start of treatment.  
                - Clarified that use in patients with an FVC of less than 80% at the start of treatment is considered investigational. |
| 8/11/2017     | New policy (effective 8/11/2017) |

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**IMPORTANT REMINDER**

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**Description**

The intent of the New to Market Drugs and Indications pre-authorization criteria is to ensure appropriate use of newly approved (“new-to-market”) medications, as well as newly approved indications for existing medications, as outlined in Food and Drug Administration (FDA) approved product labeling while full medication policy criteria are being developed (new or updated medication policies). Appropriate use is defined as use in patients who have an FDA approved indication, would meet the inclusion/exclusion criteria for the pivotal trials, who are receiving the FDA labeled dose, and who do not have any FDA labeled contraindications.
Policy/Criteria

Most contracts require pre-authorization approval of new to market drugs (NTMDs) and existing medications used for new indications (EMFNI) prior to coverage.

I. Continuation of therapy (COT):

**NTMDs** may be considered medically necessary for COT when criteria A and B, below are met.

**EMFNI** may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A, B, and C, below are met.

A. The patient is established on this therapy prior to current health plan membership AND the medication was covered by another health plan.

   *Note: If the diagnosis is not an FDA approved indication, written documentation of coverage must be provided, such as an approval letter or paid claim.*

   **AND**

B. If the diagnosis is not an FDA approved indication, documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria, is provided.

   **AND**

C. There are no specific COT criteria built into the drug-specific medication policy.

**PLEASE NOTE:** Specific COT criteria in drug-specific medication policies take precedence over the general criteria listed in this policy.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New Starts (treatment-naïve patients): **NTMDs** and **EMFNI** may be considered medically necessary for coverage when criteria A through D below are met.

A. The patient has an FDA approved indication for the requested medication.

   **AND**

B. The patient would meet the inclusion and exclusion criteria for the pivotal trial(s) for the requested FDA approved indication, as detailed in *Appendix A*.

   **AND**

C. The patient does not have any FDA labeled contraindications to the requested medication.

   **AND**
D. One of the following criterion 1 or 2 below are met:

1. The quantity requested is within the manufacturers FDA labeled maximum dose and duration.

OR

2. The prescribed dose cannot be achieved using a lesser quantity of a higher strength.

III. Administration, Quantity Limitations, and Authorization Period

A. For the scope of this coverage policy, self-administered or provider-administered drug status will be determined by product specific labeling and prescribing information.

B. When prior authorization is approved, the requested medication may be authorized in quantities (including dose and duration) that are reasonably safe and effective based on information contained in the FDA approved labeling.

C. Authorization shall be reviewed at least annually, until applicable drug-specific policy have been updated and developed for NTMDs and EMFNI.

   1. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

   2. OF NOTE: For new medications (or indications) approved under the FDA’s accelerated approval regulations, continued approval for the medication/indication may be contingent upon verification and description of clinical benefit in the confirmatory trials. If confirmatory trials fail to show clinical benefit, the coverage may be considered not medically necessary and may not be continued, per the terms of the health plan contract.

IV. New to market drugs and existing medications used for new indications are considered investigational when used for all other conditions not listed in their FDA approved prescribing information, as described in the criteria above.
Appendix A: Sources for Determination of Inclusion and Exclusion Criteria for the pivotal trial

The intent is limiting coverage to requests that mirror how the drug and indication was studied in the clinical trials used for the FDA approval.

The following sources will be considered for determination of inclusion and exclusion criteria for the pivotal trial:

- “Section 14 Clinical Trials” of the FDA-approved product labeling
- clinicaltrials.gov (based on the NCT)
- The “Methods” section in the published trial (if available)
- The pivotal trial protocol(s) (if available)

Major considerations include the diagnostic criteria, prior therapies (line in therapy), and dosing regimen, including use of mono- or combination therapy (if applicable).

NCT = national clinical trial number

Revision History

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<tr>
<td>10/15/2021</td>
<td>Clarified authorization limit. No change to intent of policy criteria.</td>
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<tr>
<td>10/26/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>07/24/2019</td>
<td>Updated criteria to add review of new indications for existing medications, in addition to newly approved medications (“new to market drugs”). Add criteria for review of requests versus pivotal trial inclusion and exclusion criteria, to mirror the rationale for the FDA labeling.</td>
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<tr>
<td>08/17/2018</td>
<td>No updates to criteria on this annual review.</td>
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<td>09/08/2017</td>
<td>New policy (effective 1/1/2018).</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Topic: Chimeric Antigen Receptor (CAR) T-cell Therapies:

- Abecma, idecabtagene vicleucel
- Breyanzi, lisocabtagene maraleucel
- Carvykti, ciltaclabtagene autoleucel
- Kymriah, tisagenlecleucel
- Tecartus, brexucabtagene autoleucel
- Yescarta, axicabtagene ciloleucel

Committee Approval Date: June 17, 2022
Effective Date: July 15, 2022
Next Review Date: March 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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Description

Chimeric antigen receptor (CAR) T-cell therapies are immunotherapies that target specific types of cancer. CAR T therapies are made for each patient, from the patient’s own blood cells. CAR T therapies target and kill cancer cells.
Policy/Criteria

Most contracts require pre-authorization approval of CAR T-cell therapies prior to coverage.

I. CAR T-cell therapies are considered investigational, except for those situations specifically addressed in the policy criteria below.

PLEASE NOTE: Under this criterion, any products not specifically addressed in this policy will be considered investigational.

II. Continuation of therapy (COT): CAR T-cell therapies may be considered medically necessary when full policy criteria below are met, including quantity limit. However, CAR T-cell therapy is not coverable for repeated doses and is not coverable if a patient has previously received prior CAR T-cell therapy (including, but not limited to those listed in Appendix 5).

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

III. New starts (treatment-naïve patients): CAR T-cell therapies may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that the patient has one of the following CAR T-cell therapy specific coverable diagnoses listed and meets all the requirements in criterion 1, 2, 3, 4, or 5 below:  

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
1. **B-cell acute lymphoblastic leukemia (ALL)** - Kymriah (tisagenlecleucel) and Tecartus (brexucabtagene autoleucel) only:

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<tr>
<td>i. There is morphologic marrow tumor involvement (≥ 5% lymphoblasts)</td>
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<td>ii. Current confirmation of CD19 tumor expression</td>
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<td>One of the following:</td>
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<td>i. ALL has relapsed after an allogeneic stem cell transplant (SCT) and CAR T-cell therapy is infused after SCT as follows:</td>
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<td>a) <strong>Kymriah only:</strong> infused 6 months or more after SCT.</td>
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<td>b) <strong>Tecartus only:</strong> infused 100 days or more after SCT.</td>
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<td>ii. ALL is refractory, as defined by ONE of the following:</td>
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<td>a) An initial complete remission is not achieved after two cycles of chemotherapy.</td>
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<td>b) A complete remission is not achieved after one cycle of chemotherapy for ALL that relapses after an initial complete remission.</td>
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<td>iii. ALL has relapsed after a second- or subsequent complete remission (post-chemotherapy).</td>
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For Philadelphia chromosome positive ALL (Ph+ ALL) only:

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<tr>
<th>AND</th>
<th>c. Step therapy</th>
<th>AND</th>
<th>d. Suitability for CAR T</th>
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<td>For Philadelphia chromosome positive ALL (Ph+ ALL) only: the patient is refractory to, or relapsed after, treatment with two or more tyrosine kinase inhibitors (TKIs) indicated for ALL, unless the patient has intolerance or contraindications to the TKIs indicated for ALL (see Appendix 1).</td>
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<td>ALL of the following:</td>
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<tr>
<td></td>
<td>i. Age requirements met, as defined in Table 1.</td>
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<tr>
<td></td>
<td>ii. Patient is fit for therapy, as defined in Table 2.</td>
<td></td>
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<td></td>
<td>iii. No prior use of gene therapy (see Appendix 5).</td>
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</tbody>
</table>

| Table 1: Age requirements for CAR T-cell therapy *
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>CAR T-cell product</td>
<td>Age criterion</td>
</tr>
<tr>
<td>B-cell ALL</td>
<td>Kymriah (tisagenlecleucel)</td>
<td>The patient is 25 years old or younger at the time of infusion.</td>
</tr>
<tr>
<td>B-cell ALL</td>
<td>Tecartus (brexucabtagene autoleucel)</td>
<td>The patient is 18 years old or older at the time of infusion.</td>
</tr>
</tbody>
</table>

* PLEASE NOTE: Age criteria are based on clinical trials and aligned with FDA approved labeling.
2. **Follicular lymphoma (FL) (not “transformed”)** b - Yescarta (axicabtagene ciloleucel) only:

|----------------|-----|-----------------------------------------------|-----|------------------------|-----|------------------------|
| BOTH of the following: | | Disease has progressed following two or more prior FL chemotherapy regimens.  
*Prior therapy must have included an anti-CD20 monoclonal antibody, and an alkylating agent (such as bendamustine, cyclophosphamide, or chlorambucil).* | | One of the following:  
i. Disease has progressed within 24 months of initiation of the first line of anti-CD20 monoclonal antibody.  
OR  
ii. Disease has progressed within 6 months of completion of the most recent FL chemotherapy regimen. | | BOTH of the following:  
i. Patient is fit for therapy, as defined in Table 2.  
AND  
ii. No prior use of gene therapy (see Appendix 5). |
| i. Patient is diagnosed with stage III or IV FL.  
**AND**  
ii. The FL has not “transformed” (grade IIIb) to a more aggressive lymphoma, such as DLBCL. b | | | | | | |

b **PLEASE NOTE**: For patients with grade IIIb (transformed FL), please use the DLBCL criteria, for consideration of coverage.
### 3. Mantle-cell lymphoma (MCL) - Tecartus (brexucabtagene autoleucel) only:

<table>
<thead>
<tr>
<th>a. Documentation of relapsed/refractory disease</th>
<th>AND</th>
<th>b. No active CNS disease</th>
<th>AND</th>
<th>c. Suitability for CAR T</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of the following:</td>
<td></td>
<td>The patient does not have active central nervous system (CNS) disease.</td>
<td></td>
<td>BOTH of the following:</td>
</tr>
<tr>
<td>i. Disease is refractory to two or more prior chemotherapy regimens.</td>
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<td></td>
<td>i. Patient is fit for therapy, as defined in Table 2.</td>
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<tr>
<td>OR</td>
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<tr>
<td>ii. Disease has relapsed following a second- or subsequent complete remission (post chemotherapy or chemoimmunotherapy).</td>
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<td></td>
<td>ii. No prior use of gene therapy (see Appendix 5).</td>
<td></td>
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</tbody>
</table>

**c PLEASE NOTE:** Prior therapy must have included an anti-CD20 monoclonal antibody, an anthracycline or bendamustine, and a Bruton’s tyrosine kinase (BTK) inhibitor (see Appendix 3).
4. **Large B-cell lymphoma** - Breyanzi (lisocabtagene maraleucel), Kymriah (tisagenlecleucel), or Yescarta (axicabtagene ciloleucel) only:

<table>
<thead>
<tr>
<th>a. Diagnostic</th>
<th>AND</th>
<th>b. Documentation of relapsed/refractory disease</th>
<th>AND</th>
<th>c. No active primary CNS disease</th>
<th>AND</th>
<th>d. Suitability for CAR T</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of the following:</td>
<td></td>
<td>One of the following:</td>
<td></td>
<td>Patient does not have active primary central nervous system (CNS) disease.</td>
<td></td>
<td>BOTH of the following:</td>
</tr>
<tr>
<td>i. <strong>Diffuse large B-cell lymphoma</strong> (DLBCL), not otherwise specified (NOS).</td>
<td></td>
<td>i. Disease is refractory to two or more prior chemotherapy regimens.</td>
<td></td>
<td>i. Patient is fit for therapy, as defined in Table 2.</td>
<td></td>
<td>i. Patient is fit for therapy, as defined in Appendix 5.</td>
</tr>
<tr>
<td>OR</td>
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<td>OR</td>
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<tr>
<td>ii. High-grade B-cell lymphoma.</td>
<td></td>
<td>ii. Disease has relapsed following a second-or subsequent complete remission (post chemotherapy).</td>
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<tr>
<td>OR</td>
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<tr>
<td>iii. DLBCL arising from follicular lymphoma (transformed FL).</td>
<td></td>
<td>iii. For DLBCL arising from FL: disease is refractory to, or relapsed after, two or more prior chemotherapy regimens after transforming to DLBCL.</td>
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<td>OR</td>
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<tr>
<td>iv. <strong>For Yescarta and Breyanzi only:</strong> Primary mediastinal large B-cell lymphoma (PMBCL).</td>
<td></td>
<td>iv. <strong>For Yescarta only:</strong> Disease is refractory to first-line chemotherapy (primary refractory).</td>
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<tr>
<td>OR</td>
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<tr>
<td>v. <strong>For Yescarta only:</strong> Disease relapsed within 12 months of a first-line complete remission (post chemotherapy).</td>
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</table>

*d PLEASE NOTE: Prior therapy must have included an anti-CD20 monoclonal antibody for CD20-positive tumors (“chemoimmunotherapy”), and an anthracycline-containing regimen.

*PLEASE NOTE: Primary refractory is defined as no complete remission to 1st-line therapy. Intolerance to 1st-line therapy does not meet intent of this criteria.*
5. **Multiple myeloma** (MM) - Abecma (idecabtagene vicleucel) and Carvykti (ciltacabtagene autoleucel) only:

<table>
<thead>
<tr>
<th>A. Documentation of relapsed/refractory disease</th>
<th>AND</th>
<th>B. Step therapy</th>
<th>AND</th>
<th>C. Suitability for CAR T</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTH of the following:</td>
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<tr>
<td>i. Disease is relapsed after, or</td>
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<tr>
<td>refractory to, four or more prior MM</td>
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<td>regimens.</td>
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<td>AND</td>
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<tr>
<td>ii. Provider attestation that the</td>
<td></td>
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<td></td>
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<tr>
<td>disease is triple-refractory. †</td>
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</table>

<table>
<thead>
<tr>
<th>Prior HSCT</th>
<th>No prior BCMA therapy</th>
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</thead>
<tbody>
<tr>
<td>Patient has had a prior HSCT, unless contraindicated.</td>
<td>No prior use of therapy directed against B-cell maturation antigen, such as Blenrep (belantamab mafodotin).</td>
<td></td>
</tr>
</tbody>
</table>

AND

<table>
<thead>
<tr>
<th>Patient has had a prior HSCT, unless contraindicated.</th>
<th>No prior use of therapy directed against B-cell maturation antigen, such as Blenrep (belantamab mafodotin).</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Patient is fit for therapy, as defined in Table 2.</td>
<td>i. No prior use of gene therapy (see Appendix 5).</td>
</tr>
<tr>
<td>AND</td>
<td>AND</td>
</tr>
</tbody>
</table>

† **PLEASE NOTE:** “Triple-refractory” is defined as being refractory to at least one medication in each of the following drug classes: an anti-CD38 monoclonal antibody, a proteosome inhibitor, and an immunomodulatory agent (see Appendix 4).
**Table 2: Suitability for CAR T-cell therapy**

The patient is a suitable candidate for CAR T-cell therapy and meets all the following criteria 1 through 3 below:

1. The patient has an ECOG performance status of 0 or 1 [or Karnofsky Performance score (KPS) of at least 80; the patient is ambulatory and able to carry out work of a light or sedentary nature].

   AND

2. The patient has adequate and stable kidney, liver, and cardiac function (provider attestation).

   AND

3. The patient has no active systemic infections (including, but not limited to HCV, HBV, and HIV infection) (provider attestation).

**PLEASE NOTE:** Suitability for CAR-T therapy must be documented in recent clinical documentation (such as in chart notes, laboratory reports), which may include evaluation for a hematopoietic stem cell transplant [HSCT; bone marrow transplant (BMT)].
IV. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers chimeric antigen receptor (CAR) T-cell therapies coverable only under the medical benefit (as provider-administered medications).

B. When pre-authorization is approved, CAR T-cell therapies will be authorized in quantities of one treatment course per lifetime.

V. Investigational Uses:

A. Repeated doses of CAR T-cell therapies (see Appendix 5), including for CAR T previously given as part of a clinical trial.

B. CAR T-cell therapies are considered investigational for all other conditions not specifically addressed in the coverage criteria defined above.

Position Statement

Summary

- There are multiple CAR T-cell therapies undergoing study for the treatment of several different types of cancers. Most of these therapies are still in early stages of development. Further study is necessary to determine whether they are safe and effective.

- CAR T-cell therapies are adoptive immuno-therapies in which T-cells are removed from the body and genetically engineered to recognize cancer cells that express an antigen receptor protein, such as CD-19 or B-cell maturation antigen (BCMA). They are known as “CAR-T cells”. The harvest and reinfusion of the T-cells is a complex procedure requiring precise scheduling and coordination of resources.

- In addition to coverage criteria set forth in this medication policy, patients must also meet stringent eligibility criteria set forth by the manufacturers of each CAR T-cell therapy.

- Patients meeting criteria for CAR T-cell therapy will be enrolled in a health plan care management program.

- The intent of this policy is to allow for coverage of these CAR T-cell therapies for the specific diagnoses for which they have been studied and to limit coverage to doses studied and shown to be safe and effective in clinical trials.

- In pivotal trials for initial FDA approval of CAR-T therapies, patients were required to have adequate performance status (PS), stable and adequate organ function, no active infections, and no graft-versus-host disease (GVHD). Recent clinical documentation must be provided, including documentation of ECOG performance status and/or Karnofsky Performance score (KPS) score. In addition, all patients were also required to be naïve to prior immunotherapy and gene therapy, including prior CAR T-cell therapy.

- Most pivotal trials required failure of standard therapy, such as (but not limited to):
  * an anti-CD20 monoclonal antibody [e.g., rituximab].
  * standard chemotherapy, such as an anthracycline-containing (e.g., doxorubicin) chemotherapy regimen for large B-cell lymphoma or an alkylator for follicular lymphoma (FL).
  * Use of targeted tyrosine kinase inhibitors [Ph+ acute lymphoblastic leukemia...
(ALL) and mantle cell lymphoma (MCL)].

* use of standard multiple myeloma (MM) therapies (a proteosome inhibitor, an immunomodulatory agent, and an anti-CD38 antibody).

- Administration of CAR T-cell therapy can result in cytokine release syndrome (CRS) which may cause fatal or life-threatening reactions.
- CAR T-cell therapy is given via an intravenous infusion as a one-time infusion. Repeat doses have not been adequately studied.
- Although there is interest in the use of CAR T-cell therapies in other diagnoses, including in patients with primary CNS lymphoma, the use of CAR T-cell therapies in other diagnoses, except as specified in the coverage criteria above, are considered unproven (“investigational”), along with use of repeated doses of CAR T-cell therapies. Many trials are ongoing in various diagnoses as well as for various dosing regimens.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.**

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

**Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.**

**Clinical Efficacy**

**KYMRIAH (TISAGENLECLEUCEL)**

- Kymriah (tisagenlecleucel) has been studied in, and is FDA-approved for:

  * B-cell precursor ALL that expresses the CD19 antigen and is refractory to, or in a second or later relapse after, treatment with standard chemotherapy, in patients up to 25 years of age.

  * Large B-cell lymphoma that is relapsed after or refractory to two or more prior lines of systemic therapy. This indication specifically includes diffuse large B-cell lymphoma (DLBCL), not otherwise specified; high-grade B-cell lymphoma; and DLBCL arising from follicular lymphoma (FL). The indication does not include use in primary central nervous system (CNS) lymphoma.
**B-cell precursor acute lymphoblastic leukemia (ALL):**

- In single-arm, clinical studies Kymriah (tisagenlecleucel) demonstrated high rates of complete remission in children and young adults with refractory or relapsed, CD19-positive, precursor B-cell ALL. All patients who achieved complete remission were also minimal residual disease negative which is predictive of survival. A small, single-arm clinical trial (ELIANA; N = 63 at the interim analysis for the FDA approval [1] and n=75 in the published trial [2]) evaluated remission rates in pediatric and young adult patients 25 years and younger with refractory or recurrent CD19-positive, B-cell precursor ALL.
  * Subjects had a median of three prior therapies. Fifty six percent received a prior hematopoietic stem cell transplant (HSCT).
  * The primary endpoint was complete remission (CR), or CR with incomplete blood recovery (CRi), sustained for 4 weeks within three months after infusion (refer to Appendix 2 for remission definitions).
  * A ORR was achieved in 82.5% of the subjects in the trial three months after treatment, of which 63.5% had a CR.
  * All subjects who achieved CR were also negative for minimum residual disease (MRD) based on bone marrow findings.

- A second, smaller (N = 29), identically designed trial (ENSIGN) reported similar results. [1]
  * CR was achieved by 69% of subjects three months after treatment.
  * All subjects with CR were also MRD-negative.

- MRD refers to the ongoing detection of disease despite a designation of CR based on conventional pathologic analysis. In a large meta-analysis of patients with ALL, achieving MRD negativity was determined to be a substantial finding as it was consistently associated with improved survival. [3] However, use of MRD as an intermediate endpoint does not preclude the need for confirmatory trials using traditional clinically relevant endpoints.

- The safety and effectiveness of Kymriah (tisagenlecleucel) has not been established in patients over 25 years of age. In patients over the age of 25, B-cell precursor ALL is generally considered to be a different disease with a different disease course (poorer prognosis with poorer survival) such that the efficacy of Kymriah (tisagenlecleucel) cannot be presumed based on the available evidence from patients who are less than 25 years old.

- The NCCN ALL guideline lists Kymriah (tisagenlecleucel) among several recommended options for relapsed or refractory ALL. It is recommended in the following settings: [4]
  * **Philadelphia chromosome-positive ALL:** For patients 25 years and younger with refractory disease or two or more relapses, and failure of two tyrosine kinases inhibitors (TKIs).
  * **Philadelphia chromosome-negative ALL:** For patients 25 years and younger with refractory disease or two or more relapses.
**Diffuse large B-cell lymphoma (DLBCL):**

- Approval in large B-cell lymphoma was based on two small, single-arm, observational studies. Specifically, Kymriah (tisagenlecleucel) was studied in two, small, single-arm observational studies (low-quality evidence) that evaluated remission rates at six months in adults with relapsed or refractory DLBCL, high-grade B-cell lymphoma, and DLBCL arising from follicular lymphoma (FL, also known as transformed FL).

  - Subjects enrolled in the trials had a median of three prior therapies. Between 56% and 86% had refractory disease, and approximately half had a prior stem cell transplant (SCT).
  - Patients included in the study were required to have failed standard therapy which included an anti-CD20 monoclonal antibody [e.g., rituximab] if the tumor was CD20-positive, and an anthracycline-containing (e.g., doxorubicin) chemotherapy regimen.
  - Prior CAR T-cell therapy was not allowed.
  - Patients were required to have adequate performance status, stable and adequate organ function, no active infections, and no advanced graft-versus-host disease.
  - One of the studies required confirmation of CD19 antigen (the target of this therapy) on cancer cells, the other did not; however, the CD19 antigen is present in nearly all large B-cell lymphomas.
  - Complete remission at 6 months was observed in 32% to 57% of subjects. In one study, the median duration of remission (DoR) for those who had achieved a complete remission was 29 months (range: 7.7 to 38 months). In the other study, the median DoR has not been reached.

- Although a relatively high rate of complete remission at 6 months was observed in some patients, long-term survival and durability of effect are still being evaluated. The effects on clinically relevant outcomes are not yet known.

- Kymriah (tisagenlecleucel) has not been adequately evaluated in subjects with a history of central nervous system (CNS) lymphoma. In particular, there is insufficient evidence to establish the safety and efficacy of CAR T therapies in patients with primary CNS lymphoma (see Investigational Uses below, for additional discussion).

- The NCCN B-cell lymphoma guideline lists Kymriah (tisagenlecleucel) as a treatment option for DLBCL that is refractory to, or relapses after, at least two prior chemoimmunotherapy regimens. The guideline further states that it is not appropriate for patients who have achieved a complete response to chemoimmunotherapy.

**YESCARTA (AXICABTAGENE CILOLEUCEL)**

**B-cell lymphomas, including large B-cell lymphoma (DLBCL, PMBCL, transformed FL) and follicular lymphoma (FL):**

Yescarta (axicabtagene ciloleucel) demonstrated high rates of response to therapy, including complete responses, in adults with relapsed or refractory B-cell lymphomas. Although results are promising, its effect on any clinically relevant outcome is not yet known.
The pivotal single-arm trial (ZUMA-1) evaluated 101 adult large B-cell lymphoma patients who had relapsed, or were refractory to, two or more prior lines of systemic therapy. [6,7]

* The following large B-cell lymphomas were included in the trial: Diffuse large B-cell lymphoma (DLBCL) [76%], DLBCL arising from follicular lymphoma (also known as transformed FL) [16%], and primary mediastinal B-cell lymphoma (PMBCL) [8%]. However, it does not include use in primary central nervous system (CNS) lymphoma.

* Subjects enrolled in the trial had disease that was either refractory to the most recent therapy [77%] or relapsed within one year of autologous hematopoietic stem cell transplant (HSCT) [21%]. Enrolled patients had a median of three prior therapies for their large B-cell lymphoma.

* For enrollment in the clinical trial, patients were required to have prior therapy that included an anti-CD20 monoclonal antibody [e.g., rituximab] if the tumor was CD20-positive, and an anthracycline-containing (e.g., doxorubicin) chemotherapy regimen.

* Prior treatment with a CAR-T-cell therapy was not allowed.

* Patients were required to have adequate performance status, stable and adequate organ function, no active infections, and no advanced graft-versus-host disease. They were also required to be naïve to prior immunotherapy and gene therapy, including prior treatment with Yescarta (axicabtagene ciloleucel).

* Although Yescarta (axicabtagene ciloleucel) is designed to target the CD19 antigen on cancer cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in nearly all large B-cell lymphomas.

* The primary endpoint was overall response rate (ORR), which is based on disease involvement in the lymph nodes, organs, and bone marrow and is assessed via positron emission tomography (PET) scan or computerized tomography (CT) scan.

* An ORR of 72% [95% CI: 62, 81] was achieved in this uncontrolled study. Of the responses, 51% [95% CI: 41, 62] were complete (CR) and 21% [95% CI: 13, 30] were partial (PR).

* The median duration of response was 9.2 months, and was longer in those who had achieved a CR.

An ongoing, pivotal, single-arm trial (ZUMA-5) evaluated 124 adult patients with follicular lymphoma (FL) (grade 1, 2, 3a) with measurable disease who had relapsed, or were refractory to two or more prior lines of systemic therapy, including at least one prior line of therapy that included a CD20-directed monoclonal antibody (mAb) combined with an alkylating agent. [8]

* The majority of FL subjects enrolled in the trial had disease that was at high risk of relapsing. This included patients that were refractory to the most recent therapy [68%], which was defined as progression within 6 months of completion of the most recent prior treatment, or they were considered to be an early relapser [55%], defined as progression within 24 months of initiation of the first
line of anti-CD20 containing immunochemotherapy. Due to the indolent nature of FL, it is in this population, that the benefit may outweigh the risks.

- Enrolled patients had a median of three prior therapies for their follicular lymphoma.

- Prior treatment with a CAR-T-cell therapy was not allowed.

- Patients were required to have adequate performance status, stable and adequate organ function, no active infections, and no advanced graft-versus-host disease. They were also required to be naïve to prior immunotherapy and gene therapy, including prior treatment with Yescarta (axicabtagene ciloleucel).

- Although Yescarta (axicabtagene ciloleucel) is designed to target the CD19 antigen on cancer cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in the majority of FL cases.

- The primary endpoint was overall response rate (ORR), which is based on disease involvement in the lymph nodes, organs, and bone marrow and is assessed via positron emission tomography (PET) scan or computerized tomography (CT) scan.

- In a subset of the FL population that was evaluable (n=84), an ORR of 94% [95% CI: 62, 81] was achieved in this uncontrolled study. Of the responses, 80% were complete (CR).

- The median duration of response and progression free survival data is immature at this time.

The ongoing phase 3, multicenter, open-label, randomized ZUMA-7 trial studied Yescarta (axicabtagene ciloleucel) in the second-line DLBCL setting compared to standard of care (SOC) chemotherapy with intent to stem cell transplant (SCT) (n=359). [25]

- Subjects enrolled in the trial had disease that was considered primary refractory to first line therapy [74%] or had relapsed within one year of a first-line therapy complete response [26%].

- For enrollment in the clinical trial, patients were required to have prior chemotherapy that included an anti-CD20 monoclonal antibody [e.g., rituximab] and an anthracycline-containing (e.g., doxorubicin) chemotherapy regimen.

- Prior treatment with a CAR-T-cell therapy was not allowed.

- Patients were required to have adequate performance status, stable and adequate organ function, no active infections, and no advanced graft-versus-host disease. They were also required to be naïve to prior gene therapy, including prior treatment with Yescarta (axicabtagene ciloleucel).

- Although Yescarta (axicabtagene ciloleucel) is designed to target the CD19 antigen on cancer cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in nearly all large B-cell lymphomas.

- The primary endpoint was event free survival (EFS), while PFS, tumor response (ORR), and OS were key secondary endpoints.
Yescarta (axicabtagene ciloleucel) improved the primary endpoint of EFS (8.3 vs. 2.0 months), as well as PFS (14.7 vs. 3.7 months) and ORR (83% vs. 50%), compared to SOC chemoimmunotherapy followed by SCT. However, EFS, PFS, and ORR are unvalidated surrogate endpoints. Of note, the complete response (CR) was 62% with Yescarta (axicabtagene ciloleucel) versus 35% with SOC chemotherapy.

* At this time, the OS data is immature. However, at a median follow-up of 24.9 months, the estimated OS at 2 years was 61% and 52% in the Yescarta (axicabtagene ciloleucel) and SOC treated groups, respectively.

Yescarta (axicabtagene ciloleucel) has not been adequately evaluated in subjects with a history of central nervous system (CNS) lymphoma. In particular, there is insufficient evidence to establish the safety and efficacy of CAR T therapies in patients with primary CNS lymphoma (see Investigational Uses below for additional information).

In addition, Yescarta (axicabtagene ciloleucel) has not been adequately evaluated in subjects who had received a prior allogeneic SCT. [6-8]

The NCCN B-cell lymphoma guideline lists Yescarta (axicabtagene ciloleucel) as a treatment option for large B-cell lymphoma in patients with primary refractory disease, disease that has relapsed <12 months after a first-line therapy complete response, or those that have disease that is refractory to, or relapses after, at least two prior chemoimmunotherapy regimens. In addition, Yescarta (axicabtagene ciloleucel) is listed as a treatment option for FL that is refractory to, or relapses after, at least two prior chemoimmunotherapy regimens. [4]

**BREYANZI (LISOCABTAGENE MARALEUCEL)**

**Large B-cell lymphoma:**

In a single-arm observational trial, Breyanzi (lisocabtagene maraleucel) demonstrated high rates of response, including complete responses, in adults with refractory large B-cell lymphomas. Although results are promising, its effect on any clinically relevant outcome is not yet known.

* The pivotal single-arm observational trial (TRANSCEND NHL 001) evaluated 256 adult patients who had lymphoma that had relapsed, or was refractory to, two or more prior lines of systemic therapy. [9]

* The following types were included in the trial: Diffuse large B-cell lymphoma (DLBCL) [51%], DLBCL arising from follicular lymphoma (FL, also known as transformed FL) [22%], high-grade B-cell lymphoma (HGBCL) [13%], primary mediastinal B-cell lymphoma (PMBCL) [6%], and other B-cell lymphomas [8%]. However, it did not include use in primary central nervous system (CNS) lymphoma.

* Subjects enrolled in the trial had disease that was either refractory to the most recent chemotherapy [67%] or relapsed within one year of autologous hematopoietic stem cell transplant (HSCT) [35%]. Enrolled patients had a median of three prior therapies for their large B-cell lymphoma.
Patients were required to have prior therapy that included an anti-CD20 monoclonal antibody [e.g., rituximab] if the tumor was CD20-positive, and an anthracycline-containing (e.g., doxorubicin) chemotherapy regimen. Prior treatment with a CAR-T-cell therapy was not allowed.

Patients were required to have adequate performance status, stable and adequate organ function, no active infections, and no advanced graft-versus-host disease.

Although Breyanzi (lisocabtagene maraleucel) is designed to target the CD19 antigen on cancer cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in nearly all large B-cell lymphomas.

The primary endpoint was overall response rate (ORR), which is based on disease involvement in the lymph nodes, organs, and bone marrow and is assessed via positron emission tomography (PET) scan or computerized tomography (CT) scan.

An ORR of 73% [95% CI: 67, 78] was achieved in this uncontrolled study. Of the responses, 53% [95% CI: 47, 59] were complete (CR) and 20% were partial (PR).

At 12 months, the response rate had decreased to 54.7% [46.7, 62.0].

Two smaller observational studies are supportive of the efficacy of Breyanzi (lisocabtagene maraleucel) [PILOT study in 12 patients, and OUTREACH study in 13 patients].

Breyanzi (lisocabtagene maraleucel) has not been adequately evaluated in subjects with a history of central nervous system (CNS) lymphoma. In particular, there is insufficient evidence to establish the safety and efficacy of CAR T therapies in patients with primary CNS lymphoma (see Investigational Uses below, for additional discussion).

In addition, Breyanzi (lisocabtagene maraleucel) has not been adequately evaluated in subjects who had received a prior allogeneic SCT.

The NCCN B-cell lymphoma guideline lists Breyanzi (lisocabtagene maraleucel) as a treatment option for large B-cell lymphoma that is refractory to, or relapses after, at least two prior chemoimmunotherapy regimens. The guideline further states that Breyanzi (lisocabtagene maraleucel) is not appropriate for patients who have achieved a complete response to chemoimmunotherapy.

**TECARTUS (BREXUCABTAGENE AUTOLEUCEL)**

**Mantle Cell Lymphoma (MCL):**

In the single-arm clinical study Tecartus (brexucabtagene autoleucel) demonstrated high rates of response to therapy, including complete responses, in adults with relapsed or refractory MCL. Although results are promising, its effect on any clinically relevant outcome is not yet known.

The pivotal single-arm trial (ZUMA-2) evaluated 74 adult patients who had relapsed or refractory mantle-cell lymphoma (MCL), after multiple specific prior therapies.

Subjects enrolled in the trial had disease that was either refractory or had relapsed after the most recent chemotherapy regimen and needed to have been on an anti-CD20 monoclonal antibody [e.g., rituximab], an anthracycline-
containing (e.g., doxorubicin) or bendamustine-containing chemotherapy regimen, and a Bruton’s tyrosine kinase (BTK) inhibitor. Enrolled patients had a median of three prior therapies for their MCL.

* Prior treatment with a CAR-T-cell therapy was not allowed.

* Although Tecartus (brexucabtagene autoleucel) is designed to target the CD19 antigen on cancer cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in the majority of MCL cases.

* The primary endpoint was objective response rate (ORR), which is defined as the incidence of a complete response or a partial response by the revised IWG Response Criteria for Malignant Lymphoma. It is based on disease involvement in the lymph nodes, organs, and bone marrow and is assessed via positron emission tomography (PET) scan or computerized tomography (CT) scan.

* In the intent-to-treat population (ITT), an ORR of 85% was achieved in this uncontrolled study. Of the responses, 59% were complete (CR) and 26% were partial (PR).

* At 12 months, the estimated progression-free survival and overall survival were 61% and 83%, respectively.

- Tecartus (brexucabtagene autoleucel) has not been adequately evaluated in subjects with a history of central nervous system (CNS) lymphoma. In particular, there is insufficient evidence to establish the safety and efficacy of CAR T therapies in patients with primary CNS lymphoma (see Investigational Uses below, for additional discussion).

- In addition, Tecartus (brexucabtagene autoleucel) has not been adequately evaluated in subjects who had received a prior allogeneic SCT.

- NCCN B-cell lymphoma guidelines list Tecartus (brexucabtagene autoleucel) as a third-line treatment option for relapsed/refractory MCL, only after chemotherapy and a BTK inhibitor. [4]

**B-cell precursor acute lymphoblastic leukemia (ALL):**

- In the pivotal, single-arm, phase 2 ZUMA-3 trial, Tecartus (brexucabtagene autoleucel) demonstrated a high rate of complete remission in adults with refractory or relapsed, CD19-positive, precursor B-cell ALL. [13]

* Subjects had a median of two prior therapies and 42% had received a prior allogeneic stem cell transplant (ASCT). In those with a prior ASCT, more than 100 days were required to pass prior to CAR-T cell therapy administration.

* The primary endpoint was complete remission (CR) or CR with incomplete blood recovery (CRi), which was achieved in 71% of treated patients.

* A CR was achieved in 56% of subjects treated with brexucabtagene autoleucel, while a CRi was achieved in 15%.

* Minimum residual disease (MRD) negativity rate, based on bone marrow findings, was achieved by 97% of patients that achieved a CR/CRi.

* The median relapse-free survival (RFS) and duration of remission were 11.6 months and 12.8 months, respectively.
- MRD refers to the ongoing detection of disease despite a designation of CR based on conventional pathologic analysis. In a large meta-analysis of patients with ALL, achieving MRD negativity was determined to be a substantial finding as it was consistently associated with improved survival.\[^3\] However, use of MRD as an intermediate endpoint does not preclude the need for confirmatory trials using traditional clinically relevant endpoints.

- The safety and effectiveness of Tecartus (brexucabtagene autoleucel) has not been established in patients younger than 18 years of age.\[^{14}\] In younger patients, B-cell precursor ALL is generally considered to be a different disease with a different disease course, such that the efficacy and safety of Tecartus (brexucabtagene autoleucel) cannot be presumed based on the available evidence from patients who are older than 18 years of age.\[^4\]

- NCCN ALL guideline lists Tecartus (brexucabtagene autoleucel) among several recommended options for relapsed or refractory ALL and after prior tyrosine kinases inhibitors (TKIs) if Philadelphia chromosome-positive (Ph+) ALL.\[^4\]

**ABECMA (IDECABTAGENE VICLEUCEL)**

**Multiple Myeloma (MM):**

- In the pivotal trial, Abecma (idecabtagene vicleucel) demonstrated high rates of response to therapy, including complete responses, in adults with relapsed or refractory multiple myeloma (MM). Although results are promising, the effect on any clinically relevant outcome is not yet known. The pivotal open-label, dose-finding trial (KarMMa) enrolled 140 adult patients, who had relapsed or refractory MM, after multiple specific prior therapies. However, only 128 patients received an infusion of idecabtagene vicleucel, of which, 124 received the FDA-approved dose of idecabtagene vicleucel (300-450x10\(^6\) CAR-positive T cells).\[^{15, 16}\]

  * Subjects enrolled in the trial must have received at least 3 prior MM treatment regimens, had disease that was refractory to the most recent chemotherapy regimen, and needed to have been on an anti-CD38 monoclonal antibody (mAb), a proteosome inhibitor (PI), and an immunomodulator (IMID).

  * Enrolled patients had a median of six prior therapies for their MM and the majority of patients (84\%) were considered triple-refractory, defined as refractory to an IMID, a PI, and an anti-CD38 mAb.

  * Prior treatment with a CAR-T-cell therapy and/or BCMA targeted therapy was not allowed.

  * Although Abecma (idecabtagene vicleucel) is designed to target the BCMA on cancerous plasma cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in the majority of MM cases.

  * The primary endpoint was objective response rate (ORR) by independent review in accordance with IMWG response criteria.
In the patients that received an infusion of idecabtagene vicleucel, an ORR of 73.4% was achieved in this uncontrolled study. Of the responses, 30.5% were stringent complete (sCR), 0.8% complete (CR), 20.3% very good partial (VGFR), and 21.9% were partial (PR).

The median progression-free survival (PFS) and duration of response (DoR) were 8.8 months and 10.6 months, respectively, across all dosing arms.

The NCCN MM guideline lists Abecma (idecabtagene vicleucel) as a treatment option under ‘Other Recommended Regimens’ for previously treated MM with the caveat that the patient has progressed on or after at least four prior MM regimens, including an anti-CD38 monoclonal antibody, an immunomodulator agent, and a proteosome inhibitor. [4]

CARVYKTI (CILTACABTAGENE AUTOLEUCEL)

* Multiple Myeloma (MM):

In the single-arm CARTITUDE-1 trial, Carvykti (ciltacabtagene autoleucel) demonstrated high rates of response to therapy, including complete responses, in adults with relapsed or refractory multiple myeloma (MM).[17] Although results are promising, its effect on any long-term clinically relevant outcome is not yet known.

The pivotal open-label CARTITUDE-1 trial enrolled 113 adult patients, who had relapsed or refractory MM, after multiple specific prior therapies. [17] However, only 97 patients received an infusion of Carvykti (ciltacabtagene autoleucel) at a dose of 0.75x10⁶ CAR-positive T cells per kilogram.

Subjects enrolled in the trial must have received at least 3 prior MM treatment regimens, had disease that was refractory to the most recent chemotherapy regimen, and needed to have been on an anti-CD38 monoclonal antibody (mAb), a proteosome inhibitor (PI), and an immunomodulator (IMID).

Enrolled patients had a median of six prior therapies for their MM and the majority of patients (88%) were considered triple-refractory, defined as refractory to an IMID, a PI, and an anti-CD38 mAb.

Prior treatment with a CAR-T-cell therapy and/or BCMA targeted therapy was not allowed.

Although Carvykti (ciltacabtagene autoleucel) is designed to target the BCMA on cancerous plasma cells, confirmation that the tumor cells were positive for this antigen was not required as a condition for inclusion in the study as it is present in the majority of MM cases.

The primary endpoint was objective response rate (ORR) by independent review in accordance with IMWG response criteria.

In the patients that received an infusion of Carvykti (ciltacabtagene autoleucel), an ORR of 97.9% was achieved in this uncontrolled study. Of the responses, 80.4% were stringent complete (sCR), 14.4% very good partial (VGFR), and 3.1% were partial (PR).

The median progression-free survival (PFS) and duration of response (DoR) were 22.8 months and 21.8 months, respectively.
- Carvykti (ciltaclabtagene autoleucel) has not yet been included in the NCCN multiple myeloma guideline due to its recent FDA approval. [4]

**Performance Status**
- Clinical trials of CAR T-cell therapies used Eastern Cooperative Oncology Group (ECOG) performance status (PS) as a measure of a patient's level of function and suitability for enrollment in trials.
- In clinical practice, either ECOG PS (0-1) or Karnofsky Performance Score (≥ 80) may be used to establish suitability for CAR T-cell therapy. [18]

**Investigational Uses**

**Repeat doses of CAR-T therapy**
- There is interest in the use of repeated doses of CAR T-cell therapies in patients that have resistance to or relapse after CAR T-cell infusion, including for patients with poor cell persistence. However, there is insufficient evidence currently for repeated doses of CAR T-cell therapies (see Appendix 5). This includes use of commercial CAR T-cell therapy products after use of CAR T-cell therapy in a clinical trial.

**Richter’s Transformation**
- There is interest in the use of CAR T-cell therapies in patients that progress to DLBCL from CLL (Richter’s transformation). However, there is currently insufficient evidence to establish the safety and efficacy in Richter’s transformation. Preliminary data in a small subset (n=8) at a single site is promising; however, the trial is still ongoing, and additional data is needed. [19]

**Central Nervous System (CNS) lymphomas**
- There is interest in the use of CAR T-cell therapies for primary CNS lymphomas. However, currently there is insufficient evidence to establish the safety and efficacy in primary CNS lymphomas.

* The current evidence is limited to patients with secondary CNS lymphoma:
  o A case series of in eight patients with secondary CNS lymphoma received Kymriah (tisagenlecleucel). [20] Two of the eight patients were treated for systemic disease, as well as CNS. Three patients had a complete response but follow up was limited (90-180 days) such that durability of response is unknown at this time.
  o In the pivotal trial for Breyanzi (lisocabtagene maraleucel), seven patients had secondary CNS lymphoma, with three patients having an objective response. [9]
- Although the available data in secondary CNS lymphoma is promising, the efficacy in primary CNS lymphoma is currently unknown. Given the known neurotoxicity with CAR-T therapies and lack inclusion of patients with primary CNS lymphoma in clinical trials, the use of CAR T therapy for the primary CNS lymphoma is considered investigational.
- NCCN Central Nervous System Cancers guideline does not include use of CAR T-cell therapy in primary CNS lymphoma. [4]

All Other Conditions: There is interest in using CAR T-cell therapies in other cancers, including B-cell mediated cancers that express the CD19 antigen and other leukemias and lymphomas; however, the safety and effectiveness of this therapy in diseases other than listed in the coverage criteria has not been established. [21]

Safety [1, 14, 22-24]

- **Boxed Warnings:** All currently available CAR T-cell therapy product prescribing information includes boxed warnings for cytokine release syndrome (CRS) and neurological toxicity.
  * CRS reactions may be fatal or life-threatening and may require supportive care, including admission to an intensive care unit (ICU). Package labeling has a box warning describing this risk.
  * CAR T-cell therapies are only available through restricted programs under a Risk Evaluation and Mitigation Strategy (REMS) and are only infused at authorized treatment centers.
  * The box warnings also describe a risk of serious and potentially fatal or life-threatening neurological toxicities, including seizures (risk varies with product. See full prescribing information for details).

- **Additional Abecma Boxed Warnings:** Hemophagocytic lymphohistiocytosis/ macrophage activation syndrome (HLH/MAS) and prolonged cytopenia with bleeding and infection.

- Additional warnings and precautions include hypersensitivity reactions (premedication is recommended prior to administration), serious infections, hypogammaglobulinemia (the need for life-long immune globulin is possible), prolonged cytopenias, development of secondary malignancies, and decreased ability to drive and operate machinery for at least eight weeks after infusion of CAR-T therapies. See full prescribing information for additional details.

- Treatment with CAR T-cell therapy is only available through select treatment centers authorized by the respective manufacturers.
  * Tecartus: Refer to [https://www.tecartus.com/treatment-center-locator](https://www.tecartus.com/treatment-center-locator)
  * Yescarta: Refer to [https://www.yescarta.com/find-a-treatment-center/](https://www.yescarta.com/find-a-treatment-center/)
  * Breyanzi: Refer to [https://www.breyanzi.com/treatment-centers/](https://www.breyanzi.com/treatment-centers/)
  * Abecma: Refer to [https://www.abecma.com/find-a-treatment-center/](https://www.abecma.com/find-a-treatment-center/)
  * Carvykti: Pending

- In some regions, site of care may be further limited by insurance providers.
Appendix 1: Tyrosine Kinase Inhibitors (TKIs) Indicated for Philadelphia chromosome-Positive B-Cell Acute Lymphoblastic Leukemia (ALL) [4]

<table>
<thead>
<tr>
<th>Iclusig (ponatinib)</th>
<th>Sprycel (dasatinib)</th>
</tr>
</thead>
<tbody>
<tr>
<td>imatinib (generic, Gleevec)</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 2: Response (Remission) Definitions for ALL [4]

**Blood and Bone Marrow:**

**Complete response (CR):**
- No circulating blasts or extramedullary disease
- Trilineage hematopoiesis (TLH) and < 5% blasts
- Absolute neutrophil count (ANC) > 1000/microliter
- Platelets > 100,000/microliter
- No recurrence for 4 weeks

**Complete response with incomplete blood count recovery (CRi):**
- Meets all criteria above for a complete response except for platelet count and/or ANC

*The overall response rate (ORR) includes both CR and CRi [ORR = CR + CRi]*

**CNS remission:**
No lymphoblasts in CSF regardless of WBC count

**Lymphomatous Extramedullary Disease:**

**CR:** Complete resolution of lymphomatous enlargement by CT scan of neck, chest, abdomen, and pelvis with IV contrast. (If previous positive PET scan, a post-treatment residual mass of any size is considered a complete response if it is PET negative)

Appendix 3: Bruton’s Tyrosine Kinase (BTK) Inhibitors Indicated for Mantle-Cell Lymphoma (MCL) [4]

<table>
<thead>
<tr>
<th>Brukinsa (zanubrutinib)</th>
<th>Imbruvica (ibrutinib)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calquence (acalabrutinib)</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 4: Select Therapies Indicated for Multiple Myeloma (MM) [4]

<table>
<thead>
<tr>
<th><strong>Anti-CD38 Monoclonal Antibodies</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>daratumumab (Darzalex, Darzalex Faspro)</td>
<td>Sarclisa (isatuximab)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Proteosome Inhibitors</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bortezomib (generics, Velcade)</td>
<td>Ninlaro (ixazomib)</td>
</tr>
<tr>
<td>Kyprolis (carfilzomib)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Immunomodulatory Agents</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>lenalidomide (generics, Revlimid)</td>
<td>Thalomid (thalidomide)</td>
</tr>
<tr>
<td>Pomalyst (pomalidomide)</td>
<td></td>
</tr>
</tbody>
</table>

### Appendix 5: Gene Therapies – CAR T [1,14,22-24]

<table>
<thead>
<tr>
<th>Coverable diagnoses, by CAR T product f</th>
<th>B-cell ALL</th>
<th>Large B-cell lymphoma, or a related lymphoma diagnosis</th>
<th>FL</th>
<th>MCL</th>
<th>MM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abecma, idecabtagene vicleucel</td>
<td>DLBCL</td>
<td>High-grade B-cell lymphoma</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carvykti, ciltacabtagene autoleucel</td>
<td></td>
<td>DLBCL arising from FL (transformed FL)</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breyanzi, lisocabtagene maraleucel</td>
<td></td>
<td>PMBCL</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kymriah, tisagenlecleucel</td>
<td></td>
<td>FL</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tecartus, brexucabtagene autoleucel</td>
<td></td>
<td>MCL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yescarta, axicabtagene ciloleucel</td>
<td></td>
<td>MM</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**ALL:** acute lymphoblastic leukemia; **DLBCL:** diffuse large B-cell lymphoma; **FL:** follicular lymphoma; **MCL:** Mantle cell lymphoma; **MM:** Multiple myeloma; **PMBCL:** Primary mediastinal large B-cell lymphoma

f This chart is subject to change at any time, given the rapid evolution of evidence as well as FDA-approval status. Any new FDA approvals not in this policy would be subject to the “New To Market Drugs and Indications” policy dru517

Based on available evidence.
### Cross References

<table>
<thead>
<tr>
<th>BlueCross BlueShield Association Medical Policy #8.01.63 - Chimeric Antigen Receptor Therapy for Leukemia and Lymphoma (12/2021)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlueCross BlueShield Association Medical Policy #8.01.66 - Chimeric Antigen Receptor Therapy for Multiple Myeloma (6/2021)</td>
</tr>
<tr>
<td>Adoptive Immunotherapy, BlueCross BlueShield Association Medical Policy #8.01.63 (5/2021)</td>
</tr>
<tr>
<td>Drugs for chronic inflammatory diseases, Medication Policy Manual, Policy No. dru444</td>
</tr>
</tbody>
</table>

**Acute lymphoblastic leukemia (ALL)**

- Besponsa, inotuzumab ozogamicin, Medication Policy Manual, Policy No. dru529
- Blincyto, blinatumomab, Medication Policy Manual, Policy No. dru388
- Marqibo, vincristine sulfate liposome injection, Medication Policy Manual, Policy No. dru278
- Iclusig, ponatinib, Medication Policy Manual, Policy No. dru292
- Sprycel, dasatinib, Medication Policy Manual, Policy No. dru137

**Large B-cell lymphoma**

- Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620

**Mantle-cell lymphoma**

- Imbruvica, ibrutinib, Medication Policy Manual, Policy No. dru326
- Calquence, acalabrutinib, Medication Policy Manual, Policy No. dru534
- Brukinsa, zanubrutinib, Medication Policy Manual, Policy No. dru619

**Multiple Myeloma**

- Medications for Multiple Myeloma, other cancers, and other hematologic disorders, Medication Policy Manual, Policy No. dru672
<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-specific codes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>S2107</td>
<td>Adoptive immunotherapy i.e., development of specific anti-tumor reactivity (e.g., tumor-infiltrating lymphocyte therapy) per course of treatment</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3590</td>
<td>Unclassified biologics</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9999</td>
<td>Not otherwise classified, antineoplastic drugs</td>
</tr>
<tr>
<td><strong>Abecma (idecabtagene vicleucel)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>Q2055</td>
<td>Idecabtagene vicleucel, up to 460 million autologous b-cell maturation antigen (bcma) directed car-positive t cells, including leukapheresis and dose preparation procedures, per therapeutic dose</td>
</tr>
<tr>
<td><strong>Breyanzi (lisocabtagene maraleucel)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>Q2054</td>
<td>Lisocabtagene maraleucel, up to 110 million autologous anti-cd19 car-positive viable t cells, including leukapheresis and dose preparation procedures, per therapeutic dose</td>
</tr>
<tr>
<td><strong>Kymriah (tisagenlecleucel)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>Q2042</td>
<td>Tisagenlecleucel (Kymriah), up to 250 million car-positive viable t-cells, including leukapheresis and dose preparation procedures, per infusion</td>
</tr>
<tr>
<td><strong>Tecartus (brexucabtagene autoleucel)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCPCS</td>
<td>Q2053</td>
<td>Brexucabtagene autoleucel, up to 200 million autologous anti-cd19 car positive viable t cells, including leukapheresis and dose preparation procedures, per therapeutic dose</td>
</tr>
<tr>
<td><strong>Yescarta (axicabtagene ciloleucel)</strong></td>
<td></td>
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</tr>
<tr>
<td>HCPCS</td>
<td>Q2041</td>
<td>Axicabtagene ciloleucel (Yescarta), up to 200 million autologous anti-cd19 car positive viable t cells, including leukapheresis and dose preparation procedures, per therapeutic dose</td>
</tr>
</tbody>
</table>
References

4. NCCN Clinical Practice Guidelines in Oncology. (various, including Acute Lymphoblastic Leukemia, B-Cell Lymphomas, CNS Cancers, and Multiple Myeloma ) [cited 5/9/2022]; Available from: https://www.nccn.org/professionals/physician_gls/


22. Abecma (idecabtagene vicleucel) [package insert]. Cambridge, MA: Celgene, Inc. (a Bristol-Myers Squibb company); March 2021


# Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>Added coverage criteria for Yescarta (axicabtagene ciloleucel) in the second-line DLBCL setting, when certain criteria are met, a newly FDA approved indication.</td>
</tr>
</tbody>
</table>
| 3/18/2022     | - Formatted coverage criteria in tabular format to simplify review (no change to intent of policy).  
                - Simplified criteria for “suitable (“fit”) for CAR T therapy.” Removed criteria requiring not eligible for a clinical trial, need to be enrolled in a health plan care management program, and absence of GVHD.  
                - Added “Repeat doses of CAR T-cell therapy” to the list of Investigational Uses (no change to intent of coverage).  
                - Added brand name for ciltacabtagene autoleucel, Carvykti. Product is now FDA-approved. |
| 10/15/2021    | Added coverage criteria for ciltacabtagene autoleucel, a new CAR-T product under FDA review, for patients with relapsed or refractory multiple myeloma.  
                Added coverage criteria for Tecartus (brexucabtagene autoleucel) in adult patients with acute lymphoblastic leukemia (ALL), a newly FDA approved indication. |
| 7/16/2021     | Added the newly FDA-approved Abecma (idecabtagene vicleucel) to policy. Limits coverage to patients with relapsed or refractory multiple myeloma when certain criteria are met.  
                Added coverage criteria for Yescarta (axicabtagene ciloleucel) in patients with follicular lymphoma when certain criteria are met, a newly FDA approved indication.  
                Updated coverage criteria for patients with diffuse large B-cell lymphoma (DLBCL) and secondary CNS lymphoma. |
| 4/22/2021     | Updated policy background section and updated lisocabtagene maraleucel with its final product name, Breyanzi, where applicable.  
                Updated coverage criteria to allow coverage of Breyanzi in PMBCL,  
                Clarified coverage criteria for patient suitability for CAR T-cell therapy, including the need for recent clinical documentation, performance status (use of ECOG or KPS), enrollment in to care management, and clinical trial (provider attestation). |
<p>| 10/28/2020    | Updated policy background section and updated KTE-X19 with its final product name, Tecartus (brexucabtagene autoleucel), where applicable. No change to intent of policy. |
| 7/22/2020     | Added coverage criteria for lisocabtagene maraleucel (liso-cel) and KTE-X19, two new CAR-T products under FDA review (effective 9/1/2020). |
| 6/15/2020     | Removed references to brand Rituxan from policy to account for upcoming changes in biosimilars policy (dru620). |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
</tr>
</thead>
</table>
| 4/22/2020  | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).  
Added criteria III.A.6, referencing ineligibility for clinical trial enrollment.  
Updated evidence for the use with CNS lymphoma (Investigational). |
| 11/16/2018 | Lymphoma coverage criterion (II.B.2.c) was modified to state that a contraindication to coverage is active CNS disease.  |
| 9/21/2018  | Added coverage of tisagenlecleucel in DLBCL, a new indication.                                                            |
| 3/19/2018  | New policy                                                                                                               |

_Drug names identified in this policy are the trademarks of their respective owners._
Medication Policy Manual

**Topic:** Luxturna, voretigene neparvovec

**Committee Approval Date:** April 21, 2021

**Effective Date:** July 1, 2021

**Policy No:** dru527

**Date of Origin:** August 1, 2018

**Next Review Date:** April 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Voretigene neparvovec-rzyl (Luxturna) is a gene therapy used for the treatment of patients with confirmed biallelic RPE65 mutation-associated retinal dystrophy.
Policy/Criteria

Most contracts require pre-authorization approval of voretigene neparvovec (Luxturna) prior to coverage.

I. Voretigene neparvovec (Luxturna) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A through E below are met.

A. A diagnosis of biallelic RPE65 mutation-associated retinal dystrophy confirmed by genetic testing.

AND

B. There are sufficient viable retinal cells (defined as an area of retinal thickness >100 microns within the posterior pole), as measured by optical coherence tomography (OCT).

AND

C. The member is at least 12 months of age.

AND

D. The member has remaining light perception in the eye or eyes that will receive treatment.

AND

E. The member has not had any of the following:

1. Prior intraocular surgery within 6 months
2. Use of high-dose (>7500 retinol equivalent units [or >3300 IU] per day of vitamin A) retinoid compounds in the past 18 months

II. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers voretigene neparvovec (Luxturna) to be a provider-administered medication.

B. When preauthorization is approved, voretigene neparvovec (Luxturna) may be authorized in quantities of one dose per eye per lifetime.

III. Voretigene neparvovec (Luxturna) is considered investigational when:

A. Used as re-treatment.

B. Used for inherited retinal diseases not due to an RPE65 mutation.

C. Used after or in combination with any other gene therapy.
Position Statement

- Voretigene neparvovec (Luxturna) is indicated for the treatment of patients with confirmed biallelic RPE65 mutation-associated retinal dystrophy. Patients must have viable retinal cells as determined by the treating physician(s). [1]
- Inherited retinal dystrophies (IRDs) are a diverse group of disorders with overlapping phenotypes characterized by progressive degeneration and dysfunction of the retina. [2]
- Biallelic RPE65 mutation-associated retinal dystrophy is a rare genetic condition and encompasses several clinical diagnoses, including Leber congenital amaurosis (LCA), Retinitis Pigmentosa (RP), and Severe Early Childhood Onset Retinal Dystrophy (SECORD).
- Genetic testing is required to confirm the diagnosis of RPE65-mediated retinal dystrophy.
- Voretigene neparvovec (Luxturna) is given as sequential, bilateral subretinal injections of 1.5E11 (or 150 billion) vg delivered in a total subretinal volume of 0.3 mL per eye. The individual procedures to each eye are performed on separate days no more than 6 days apart. The procedure is given under general anesthesia.
- Use of voretigene neparvovec (Luxturna) is limited to medical centers with retina specialists with expertise in inherited retinal disorders, vitreoretinal surgery expertise, and pharmacies adequately trained to handle the product.
- Voretigene neparvovec (Luxturna) has been shown to improve visual function in low light settings, as measured by the multi-luminance mobility test (MLMT).
- In clinical studies, patients who had more advanced disease, did not experience improvement.
- Use in infants under 12 months of age is not recommended because of potential dilution or loss of voretigene neparvovec (Luxturna) after administration due to active retinal cells proliferation.
- Voretigene neparvovec (Luxturna) has only been studied for inherited retinal dystrophies due to biallelic RPE65 mutations. There is no evidence for inherited retinal diseases due to other mutations.
- Repeated doses of voretigene neparvovec (Luxturna) have not been studied. In clinical studies, patients received one dose in each eye once.
- Voretigene neparvovec (Luxturna) has not been studied after or in combination with other gene therapies

Clinical Efficacy

- The efficacy of voretigene neparvovec (Luxturna) was evaluated in one open-label, randomized, controlled, phase 3 trial. [3,4]
  * Patients with a confirmed diagnosis of RPE65-mediated retinal dystrophy were randomized 2:1 to receive voretigene neparvovec (Luxturna) or to a control group.
  * The study excluded patients who had used high-dose (>7500 retinol equivalent units [or >3300 IU] per day of vitamin A) retinoid compounds in the past 18 months or who had intraocular surgery in the past 6 months.
The primary endpoint was change in multi-luminance mobility test (MLMT) score at 1 year.

- The MLMT was designed to measure functional vision and integrate aspects of visual acuity, visual field, and light sensitivity. To complete the MLMT patients navigate a marked path in varying light levels. The path contained various obstacles that subjects must navigate around. Patients successfully completed the MLMT if they completed the course in less than 3 minutes with less than 4 errors.

- An improvement in score at one year meant that patients could complete the course at a lower light level than at baseline.

* The mean of the bilateral MLMT change score at one year was 1.8 in the intervention group and 0.2 in the control group (a difference of 1.6; 95% CI 0.72 to 2.41, \( p = 0.0013 \)).

* Three patients who could not complete the MLMT at the brightest light level at baseline did not experience improvement after one year. Patients with more advanced disease may be less likely to have improvement in visual function.

* Key secondary endpoints included full-field light sensitivity threshold testing (FST) and best corrected visual acuity (BCVA).

- In the intervention group, mean FST showed improvement in light sensitivity by day 30 and remained stable over 1 year. The control group showed no meaningful change in this measure over 1 year.

- Results for BCVA favored the treatment group, but were not statistically significant.

**Diagnosis**

- Genetic testing is required to establish a diagnosis of RPE65 mediated retinal dystrophy. Pathogenic variant(s) must be present in both copies of the RPE65 gene to establish a diagnosis of biallelic RPE65-mediated inherited retinal dystrophy. Clinical studies included patients with pathogenic variations in the homozygous or compound heterozygous state. [1,5]

**Investigational Uses**

- Retreatment with voretigene neparvovec (Luxturna) has not been studied. Additional studies and clinical experience with voretigene neparvovec (Luxturna) are needed to determine the role of retreatment and to identify safety and efficacy with repeat dosing. [3]

- Voretigene neparvovec (Luxturna) has not been studied in patients with inherited retinal dystrophies due to mutations other than biallelic RPE65 mutations.
Cross References

Genetic Testing for Biallelic RPE65 Variant-Associated Retinal Dystrophy, Medical Policy Manual, Genetic Testing Policy No. 21

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<td>J3398</td>
<td>Injection, voretigene neaprovoc-rzyl (Luxturna), 1 billion vector genomes</td>
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References

1. Luxturna [Prescribing information]. Philadelphia, PA: Spark Therapeutics; December 2017

Revision History

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<td>04/21/2021</td>
<td>No changes to coverage criteria with this annual update.</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>Removed COT language, as it is not applicable for a medication dosed such as voretigene neaprovoc (Luxturna).</td>
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<tr>
<td>04/22/2020</td>
<td>Added continuation of therapy language (no change to intent of coverage criteria).</td>
</tr>
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<td>10/23/2019</td>
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<tr>
<td>7/20/2018</td>
<td>New Policy, effective on August 1, 2018.</td>
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Medication Policy Manual

Policy No: dru528

Topic: Aliqopa, copanlisib

Date of Origin: March 1, 2018

Committee Approval Date: April 21, 2021

Next Review Date: January 2022

Effective Date: July 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Copanlisib (Aliqopa) is an intravenously administered tyrosine kinase inhibitor (PI3K inhibitor), used to treat certain types of cancer.
Policy/Criteria

Most contracts require pre-authorization approval of copanlisib (Aliqopa) prior to coverage.

I. **Continuation of therapy (COT):** Copanlisib (Aliqopa) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naive patients):** Copanlisib (Aliqopa) may be considered medically necessary when criteria A through D below are met.

   A. Clinical documentation (including, but not limited to chart notes) of a diagnosis of **follicular lymphoma** (FL).

   AND

   B. Clinical documentation (including, but not limited to chart notes) that at least two prior therapies for FL have been ineffective.

   AND

   C. The patient has not experienced progression of disease while taking idelalisib (Zydelig) or duvelisib (Copiktra).
AND
D. Copanlisib (Aliqopa) will be used as monotherapy.

III. Administration, Quantity Limitations, and Authorization Period
A. Pharmacy Services does not consider copanlisib (Aliqopa) to be a self-administered medication.
B. When pre-authorization is approved, up to three, 60-mg infusions of copanlisib (Aliqopa) will be authorized every 28 days.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Copanlisib (Aliqopa) is considered investigational when used for all other conditions including, but not limited to, other types of B-cell lymphomas.

Position Statement

Summary
- Copanlisib (Aliqopa) is an intravenously infused tyrosine kinase inhibitor used in the treatment of adults with relapsed follicular lymphoma (FL). It was studied and subsequently approved for use in patients whose disease had progressed after at least two prior systemic therapies.
- Like idelalisib (Zydelig) and duvelisib (Copiktra), it works by inhibiting a specific set of tyrosine kinases [alpha- and gamma isoforms of phosphatidylinositol-3-kinase (PI3K)] which are expressed on malignant B-cells.
- The intent of this policy is to allow for coverage of copanlisib (Aliqopa) in FL when two prior treatment alternatives are not effective, up to the dose shown to be safe and effective in trials.
- Current evidence is limited to small number of patients who received copanlisib (Aliqopa) for progressive FL in a single-arm, observational trial. FDA Accelerated approval was granted based its potential to shrink lymph node masses and to decrease the number of cancer cells in bone marrow.
- Copanlisib (Aliqopa) has not been shown to improve survival, symptom control, or quality of life in patients with FL, and it is not known how its safety and efficacy compare with other therapy options.
- The National Comprehensive Cancer Network (NCCN) B-cell lymphomas guideline lists copanlisib (Aliqopa) among several potential options for patients with progressive FL. It is specifically listed for disease refractory to at least two prior therapies (category 2A).
Copanlisib (Aliqopa) is administered as a 60-minute infusion in a dose of 60 mg weekly for three consecutive weeks out of each four-week cycle, and is given until disease progression. It is given as a monotherapy.

Because copanlisib (Aliqopa) has activity against a specific kinase present on certain B-cells, there is interest in using it in other types of B-cell-mediated cancers. To date, there is no published evidence outside of the progressive FL setting.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The evidence for copanlisib (Aliqopa) is of low quality. It received FDA Accelerated approval based on a single-arm, observational trial that used a surrogate endpoint to estimate efficacy. [1]
  * The study enrolled adults with indolent or aggressive non-Hodgkin lymphomas that had relapsed after or were refractory to two or more prior chemotherapy or immunotherapy based regimens.
  * All subjects had prior therapy with rituximab.
  * The follicular lymphoma cohort of the study included 104 subjects.
  * Fifty nine percent of subjects had an objective response, which was based on decreased size of lymph nodes and a decrease in bone marrow infiltrates. Fourteen percent of the responses were considered complete. The median duration of response was 12.2 months.
  * Objective response has not been shown to correlate with improvement in any clinically relevant endpoint (e.g., quality of life, improved survival, symptom control).
- There is no evidence that it improves any clinically relevant outcome related to FL, and it is not known how it compares with other therapy options.
- The National Comprehensive Cancer Network (NCCN) B-cell lymphoma guideline lists rituximab-based therapies as the recommended front-line treatment option for FL. Copanlisib (Aliqopa) is listed among several subsequent-line options. [2]

Investigational Uses

- Based on its mechanism of action (PI3K inhibitor, targets malignant B cells), there is interest in using copanlisib (Aliqopa) in other non-Hodgkin lymphomas, and even breast cancer. [3] There is currently no published evidence supporting its use in any of these conditions.
- NCCN guidelines do not list copanlisib (Aliqopa) as a treatment option outside of the progressive FL setting.
Safety \[^{[1]}\]
- Current safety experience with copanlisib (Aliqopa) is limited. The concomitant use of copanlisib (Aliqopa) with other therapies has not been studied.
- The safety of copanlisib (Aliqopa) relative to other subsequent-line FL therapies is not known.

Dosing \[^{[1]}\]
- Package labeling recommends that copanlisib (Aliqopa) be administered over 60 minutes in a dose of 60 mg. It is given on Days 1, 8, and 15 of each 28-day treatment cycle until progression of disease or intolerable side effects.
- The dose should be modified or held for specific adverse reactions (e.g., hypertension, hyperglycemia, bone marrow suppression). Refer to package labeling for specific recommendations.

Cross References

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<thead>
<tr>
<th>Gazyva, obinutuzumab, Medication Policy Manual, Policy No. dru327</th>
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<tr>
<td>Zydelig, idelalisib, Medication Policy Manual, Policy No. dru363</td>
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<tr>
<td>Copiktra, duvelisib, Medication Policy Manual, Policy No. dru573</td>
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<tr>
<td>Non-Preferred Products with Available Biosimilars, Medication Policy Manual, Policy No. dru620</td>
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<td>HCPCS</td>
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References

**Revision History**

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<td>4/21/2021</td>
<td>Clarification of criteria to mirror other PI3K inhibitor policies [no progression of disease while taking a prior PI3K inhibitor]. This was the intent of existing criteria, but not explicitly stated to include duvelisib (Copiktra). No change to intent of criteria with this annual update.</td>
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<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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Medication Policy Manual

Policy No: dru529

Topic: Besponsa, inotuzumab ozogamicin

Date of Origin: March 1, 2018

Committee Approval Date: April 21, 2021

Next Review Date: April 2022

Effective Date: July 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

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Description

Inotuzumab ozogamicin (Besponsa) is an intravenously infused antibody-drug conjugate medication. It delivers cytotoxic chemotherapy to malignant B-cells, thereby causing cell death. It is approved for the treatment of adults with B-cell precursor acute lymphoblastic leukemia (ALL).
Policy/Criteria

Most contracts require pre-authorization approval of inotuzumab ozogamicin (Besponsa) prior to coverage.

I. Continuation of therapy (COT): Inotuzumab ozogamicin (Besponsa) may be considered medically necessary for COT when criteria A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. The requested number of doses (cycles) is within the policy limits below (Note: Doses (cycles) already administered will be counted towards the coverable maximum quantity)

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Inotuzumab ozogamicin (Besponsa) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes), that criteria A through E below are met.

A. A diagnosis of relapsed or refractory B-cell acute lymphoblastic leukemia (ALL).
AND 
B. There is documentation providing current confirmation of CD22 tumor expression. 
AND 
C. The patient has received prior therapy meeting both criteria 1 and 2 below:
   1. At least one prior cytotoxic chemotherapy induction regimen has been ineffective. 
   AND 
   2. If the ALL is positive for the Philadelphia chromosome (Ph-positive), at least one tyrosine kinase inhibitor (TKI) indicated for ALL was not effective, unless all are contraindicated or not tolerated. 
AND 
D. The patient does not have active central nervous system (CNS) leukemia. 
AND 
E. When either criterion 1 or 2 is met:
   1. Inotuzumab ozogamicin (Besponsa) will be used as a monotherapy. 
   OR 
   2. Inotuzumab ozogamicin (Besponsa) will be used in combination with a mini-hyperCVD (cyclophosphamide, dexamethasone, vincristine, methotrexate, and cytarabine) regimen in relapsed or refractory Ph-negative ALL. 

III. Administration, Quantity Limitations, and Authorization Period 
A. Regence Pharmacy Services does not consider inotuzumab ozogamicin (Besponsa) to be a self-administered medication. 
B. Initial authorization: When pre-authorization is approved, up to nine doses (three cycles) of inotuzumab ozogamicin (Besponsa) will be authorized over a three-month period. 
C. Reauthorization: In patients who achieve a complete remission but who are not proceeding to a hematopoietic stem cell transplant (HSCT), up to nine additional doses (three additional cycles) will be authorized in a consecutive three-month period. No doses beyond a total of six-cycles will be authorized. 

IV. Inotuzumab ozogamicin (Besponsa) is considered investigational when:
A. Used in combination with other ALL therapies, except those therapies expressly listed in criteria E.2. above. 
B. Used in quantities exceeding the number of doses listed in criteria II.A. and II.B. 
C. Use after hematopoietic stem cell transplant (HSCT), including use of doses pre-authorized for administration prior to HSCT, but given after HSCT. 
D. Used for all other conditions.
Position Statement

Summary

- Inotuzumab ozogamicin (Besponsa) is an intravenously infused antibody-drug conjugate that targets the CD22 antigen on B-cells. It delivers a cytotoxic chemotherapy agent that causes cell death. It was studied and subsequently approved for the treatment of relapsed or refractory B-cell precursor acute lymphoblastic leukemia (ALL).

- Intent of the policy is to cover inotuzumab ozogamicin (Besponsa) for B-cell precursor ALL when standard chemotherapy is ineffective, the setting where its safety and effectiveness has been studied.

- Inotuzumab ozogamicin (Besponsa) was studied in adult patients with CD22-positive B-cell ALL that had relapsed after, or was refractory to, induction with a standard chemotherapy regimen who were scheduled for their first- or second salvage therapy. For Philadelphia chromosome-positive (Ph+) disease, patients were unresponsive to both standard induction therapy and a tyrosine kinase inhibitor indicated for Ph+ ALL.

- Patients with active central nervous system (CNS) leukemia were not included in the pivotal clinical study.

- Approval of inotuzumab ozogamicin (Besponsa) was based on its ability to induce a complete remission relative to investigator’s choice of chemotherapy. The remission rates were 80% and 29%, respectively. However, there was no difference in median overall survival between the two groups.

- The National Comprehensive Cancer Network (NCCN) acute lymphoblastic lymphoma guideline lists inotuzumab ozogamicin (Besponsa) among category 1 recommendations for patients with Ph-negative relapsed or refractory ALL. It is listed as a category 2A recommendation for those with Ph-positive relapsed or refractory ALL.

- Inotuzumab ozogamicin (Besponsa) is administered as a 60-minute infusion on Days 1, 8, and 15 of each cycle (the initial cycle is 21 days, subsequent cycles are 28 days). The dose is dependent of the response achieved after cycle 1, and may be adjusted based on side effects. It may be given for a maximum of six cycles in patients who do not receive a hematopoietic stem cell transplant (HSCT).

- Inotuzumab ozogamicin (Besponsa) has not been studied for use after hematopoietic stem cell transplant.

- Inotuzumab ozogamicin (Besponsa) labeling carries a BOX WARNING describing the potential for liver toxicity, including veno-occlusive disease, and an increase in post bone marrow transplant mortality.

- There is possible interest in using inotuzumab ozogamicin (Besponsa) in other B-cell lymphomas; however, there is currently no published evidence evaluating the safety and effectiveness of this medication in these conditions.
Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

- The approval of inotuzumab ozogamicin (Besponsa) was based on an open-label RCT that compared it with investigator’s choice of chemotherapy in patients who relapsed after or were refractory to a front-line chemotherapy regimen. [1]
  - Patients enrolled in the study had CD22-positive ALL (included both Philadelphia chromosome (Ph)-positive and Ph-negative patients).
  - Complete remission, the primary endpoint, was achieved by 80.7% and 29.4% of subjects in the inotuzumab ozogamicin (Besponsa) and chemotherapy arms, respectively.
  - The median duration of response was 4.6 months and 3.1 months in the inotuzumab ozogamicin (Besponsa) and chemotherapy arms, respectively. However, no difference in overall survival was detected between the two therapies.

- Although it appears inotuzumab ozogamicin (Besponsa) has activity in patients with relapsed or refractory B-cell ALL based on its ability to induce disease remission, the small difference in duration of response and the lack of improvement in overall survival relative to chemotherapy brings into question the overall clinical benefit of this therapy.

- The National Comprehensive Cancer Network (NCCN) acute lymphoblastic leukemia (ALL) guideline lists inotuzumab ozogamicin (Besponsa) as a category 1 recommendation for Ph-negative ALL. Blinatumomab (Blincyto) is also listed as a category 1 recommendation in this population. Inotuzumab ozogamicin (Besponsa) is also listed among several category 2A recommendations for patients with Ph-positive ALL. In patients with relapsed or refractory Ph-negative ALL, use of inotuzumab ozogamicin (Besponsa) in combination with mini-hyperCVD (cyclophosphamide, dexamethasone, vincristine, methotrexate, and cytarabine) is listed as a category 2a. [2]

Investigational Uses

- Based on its mechanism of action, inotuzumab ozogamicin (Besponsa) may have potential applications in other B-cell-mediated cancers; [3] however, there is currently no published evidence supporting use in any condition other than CD22-positive B-cell ALL.

- NCCN guidelines do not list inotuzumab ozogamicin (Besponsa) as a treatment option outside of the relapsed or refractory B-cell ALL setting.
**Safety** [4,5]

- Current safety experience with inotuzumab ozogamicin (Besponsa) is limited. However, there are significant adverse effects associated with its use that have been identified in the clinical trial. It delivers the same cytotoxic chemotherapy agent to cells as gemtuzumab ozogamicin (Mylotarg), which was withdrawn from the market for several years due to deaths associated with hepatic veno-occlusive disease (VOD).

- Inotuzumab ozogamicin (Besponsa) and gemtuzumab ozogamicin (Mylotarg) carry BOX WARNINGS for hepatotoxicity, including hepatic VOD and increased risk of post-hematopoietic stem cell transplant non-relapse mortality.

**Dosing** [4]

- Premedication with corticosteroids, antipyretics, and antihistamines is recommended prior to each inotuzumab ozogamicin (Besponsa) infusion.

- Inotuzumab ozogamicin (Besponsa) is given via a 60-minute infusion on Days 1, 8, and 15 of each cycle. The initial cycle is 21 days. Subsequent cycles are 28 days in length. Dosing is based on body surface area.

- For patients proceeding to a hematopoietic stem cell transplant, the recommended duration of therapy is two cycles. A third cycle may be given if the patient does not achieve a complete remission and minimal residual disease (MRD) negativity after two cycles.

- A maximum of six cycles of treatment may be administered to patients who are not proceeding to hematopoietic stem cell transplant.

**Appendix 1: Tyrosine Kinase Inhibitors (TKIs) Indicated for Philadelphia chromosome-Positive B-Cell Acute Lymphoblastic Leukemia (ALL)**

| dasatinib (Sprycel) |
| ponatinib (Iclusig) |
| imatinib (Gleevec) |

**Cross References**

- Blincyto, blinatumomab, Medication Policy Manual, Policy No. dru388
- Marqibo, vincristine sulfate liposome injection, Medication Policy Manual, Policy No. dru278
- Chimeric Antigen Receptor (CAR) T-cell Therapies, Medication Policy Manual, Policy No. dru523

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<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/21/2021</td>
<td>Updated continuation of therapy (COT) criteria. No other updates with this annual review.</td>
</tr>
</tbody>
</table>
| 4/22/2020 | • Added continuation of therapy (COT) criteria.  
• Updated coverage criteria E. to allow inotuzumab ozogamicin (Besponsa) in combination with mini hyperCVD (cyclophosphamide, dexamethasone, vincristine, methotrexate, and cytarabine) in patients with relapsed or refractory Ph-negative ALL. |
| 2/16/2018 | New policy |

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Medication Policy Manual

Topic: Mylotarg, gemtuzumab ozogamicin

Committee Approval Date: October 15, 2021

Effective Date: November 15, 2021

Policy No: dru530

Date of Origin: March 1, 2018

Next Review Date: December 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Gemtuzumab inotuzumab (Mylotarg) is an intravenously infused antibody-drug conjugate medication. It delivers cytotoxic chemotherapy to myeloid cells that express the CD33 antigen, thereby causing cell death. It is approved for the treatment of CD33-positive acute myeloid leukemia (AML).
Policy/Criteria

I. **Continuation of therapy (COT):** Gemtuzumab ozogamicin (Mylotarg) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criterion A, B, or C below are met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Gemtuzumab ozogamicin (Mylotarg) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

   A. A diagnosis of **CD33-positive acute myeloid leukemia (AML)** in one of the following settings (1 or 2):
      1. Adult or pediatric patients (1 month of age and older) naïve to prior AML treatment.
      OR
      2. Adult or pediatric patients (2 years of age and older) with disease that relapsed after, or was refractory to, a prior AML induction chemotherapy regimen AND used as a monotherapy (as a single agent).
AND

B. The patient does not have active central nervous system (CNS) leukemia.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers gemtuzumab ozogamicin (Mylotarg) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, gemtuzumab ozogamicin (Mylotarg) will be approved in the following quantities:

<table>
<thead>
<tr>
<th>Treatment setting:</th>
<th>Maximum number of infusions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults with newly diagnosed AML when used in combination with chemotherapy</td>
<td>Up to five infusions</td>
</tr>
<tr>
<td>Pediatric patients with newly diagnosed AML when used in combination with chemotherapy</td>
<td>Up to two infusions</td>
</tr>
<tr>
<td>Adults with newly diagnosed AML when used as a single agent</td>
<td>Up to ten infusions</td>
</tr>
<tr>
<td>Adults or pediatric patients with relapsed or refractory AML when used as a single agent</td>
<td>Up to three infusions</td>
</tr>
</tbody>
</table>

C. Reauthorization: No additional doses of gemtuzumab ozogamicin (Mylotarg) will be authorized.

IV. Gemtuzumab ozogamicin (Mylotarg) is considered investigational when:

A. Used in quantities exceeding the maximum number of infusions listed in the Quantity Limits above (Table 1).

B. Used for all other conditions.

Position Statement

Summary

- Gemtuzumab ozogamicin (Mylotarg) is an intravenously infused antibody-drug conjugate that targets the CD33 antigen present on myeloid cells. It delivers a cytotoxic chemotherapy agent that causes cell death. It was studied and subsequently approved for newly diagnosed CD33-positive (CD33+) acute myeloid leukemia (AML) in adults, and in relapsed or refractory CD33+ AML in adults and pediatrics (> 2 years of age).

- The intent of this policy is to cover gemtuzumab ozogamicin (Mylotarg) for the indications and regimen for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- Gemtuzumab ozogamicin (Mylotarg) initially received FDA Accelerated approval in 2000 but was withdrawn from the market in 2010 because clinical benefit (survival) had not yet been established despite the completion of several follow-on phase 3 trials. Post-marketing experience also revealed a significant risk of fatal hepatic veno-occlusive disease (VOD) suggesting that risks with this medication were greater than potential benefit.

- The re-approval of gemtuzumab ozogamicin (Mylotarg) in late 2017 is based on four pivotal studies in various populations and settings. Although it appears to have activity in AML based on induction of disease remission, an initial goal of therapy, a clear long-term clinical benefit has not yet been established (e.g., improved survival or quality of life).

* **Adults with newly diagnosed CD33+ AML:**
  - There was no difference in remission rates in patients receiving chemotherapy alone, versus chemotherapy plus gemtuzumab ozogamicin (Mylotarg). There was no difference in overall survival (OS) at 2 years after adjustment for factors of prognostic importance.
  - A statistically significant, but not likely a clinically relevant, difference in median OS (five weeks) was noted with gemtuzumab ozogamicin (Mylotarg) relative to best supportive care.

* **Adults with CD33+ AML in first relapse:** Remission rates of 26% were reported in a small observational study. Long term clinical benefits, and relative comparisons to other therapies or best supportive care are not known.

* **Pediatric patients with relapsed or refractory CD33+ AML:** Use in pediatrics is based on a small (28 patient) observational study in children ages 2 to 18 years and a retrospective literature review of case studies in which it was noted that there were no differences in efficacy or safety observed by age.

- Patients with active central nervous system (CNS) leukemia were not included in the pivotal clinical studies so it is not known if it provides any benefit in this population.

- The National Comprehensive Cancer Network (NCCN) AML guideline lists gemtuzumab ozogamicin (Mylotarg) as a treatment option for its labeled indications.

- Gemtuzumab ozogamicin (Mylotarg) is administered as a 120-minute infusion. The dose and schedule are determined by the disease setting and whether it is administered as an add-on to a chemotherapy regimen, or as a single agent (refer to Dosing section of policy).

- Gemtuzumab ozogamicin (Mylotarg) labeling carries a BOX WARNING describing the potential for liver toxicity, including severe or fatal VOD.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

- Gemtuzumab ozogamicin (Mylotarg) initially received FDA Accelerated approval in 2000 but was withdrawn from the market in 2010 because clinical benefit (survival) had not yet been established despite the completion of several follow-on phase 3 trials. Post-marketing experience also revealed a significant risk of fatal hepatic veno-occlusive disease (VOD) suggesting that risks with this medication were greater than potential benefit. [1]

- The current approval (late 2017) of gemtuzumab ozogamicin (Mylotarg) was based on four pivotal trials in the following settings:
  
  * **Adults with newly diagnosed AML with gemtuzumab ozogamicin (Mylotarg) as an add-on to chemotherapy:** [2]
    - This study compared chemotherapy alone with chemotherapy plus gemtuzumab ozogamicin (Mylotarg) in patients between 50 and 70 years of age.
    - There was no difference in complete remission rates between the groups.
    - The two-year overall survival (OS) rates were 41.9% and 53.2%, respectively; however, after adjustment for factors of prognostic importance (genotype and cytogenetics), there was no difference in OS between groups.

  * **Adults with newly diagnosed AML with gemtuzumab ozogamicin (Mylotarg) as a monotherapy:** [3]
    - This study compared gemtuzumab ozogamicin (Mylotarg) monotherapy with best supportive care (BSC) in patients who were ineligible for intensive chemotherapy (the median age was 77 years).
    - The median OS was 4.9 months and 3.6 months in the gemtuzumab ozogamicin (Mylotarg) and BSC treatment groups, respectively. This small difference is statistically different but is not likely clinically relevant.
    - Although CD33 status was not part of the inclusion criteria, there was a strong correlation between CD33 expression and OS.

  * **Adults with CD33+ AML in first relapse:** [4]
    - This single-arm, observational study evaluated remission rates in adults with CD33+ AML who were receiving gemtuzumab ozogamicin (Mylotarg) in their first disease relapse.
    - The rate of complete remission was 26%, with a median relapse-free survival of 11.6 months.
    - The study did not evaluate long-term clinical outcomes and did not compare gemtuzumab ozogamicin (Mylotarg) with any other therapy.
Pediatric patients with relapsed or refractory CD33+ AML: [4]

- Approval of gemtuzumab ozogamicin (Mylotarg) in pediatric patients is based on an observational trial in 28 patients with relapsed or refractory CD33+ AML that ranged in age from 2 years to 18 years. Additional case reports from the literature were also included.
- No differences in efficacy and safety were observed based on age.

- Although induction of remission is a goal of therapy in AML, achieving remission has not been shown to be predictive of long-term benefit such as improved overall survival. None of the current studies establishes a durable clinical benefit with gemtuzumab ozogamicin (Mylotarg) in treating AML. Increased mortality due to hepatic VOD remains a significant risk with this medication.

- Patients with active central nervous system (CNS) leukemia were not included in the pivotal clinical trials, so it is not known if gemtuzumab ozogamicin (Mylotarg) provides any potential benefit in this population.

- The National Comprehensive Cancer Network (NCCN) acute myeloid leukemia (AML) guideline lists gemtuzumab ozogamicin (Mylotarg) as a treatment option for its labeled indications. [5]

Investigational Uses

- There is interest in using gemtuzumab ozogamicin (Mylotarg) in other leukemias, and in high-risk myelodysplastic syndrome (MDS). [6] Studies in these areas are ongoing. There is currently no published evidence in these conditions.

- The NCCN compendium lists gemtuzumab ozogamicin (Mylotarg) as a treatment option for acute promyelocytic leukemia (APL). It also recommends its use in high-risk AML (WBC > 10,000/mcL), regardless of tumor CD33 status, when cardiac issues are present. This use lies outside of package labeling and is not well-supported by clinical evidence. [5]

Safety

- Gemtuzumab ozogamicin (Mylotarg) carries a BOX WARNING for hepatotoxicity, including severe or fatal VOD. [4]

- The overall incidence of hepatic VOD with gemtuzumab ozogamicin (Mylotarg) was approximately 9% based on a safety registry surrounding its prior approval. A pharmacovigilance program identified more than twice the number of hepatic VOD cases as the registry, which puts its overall incidence somewhere between 10% and 20%. [1]

- Hospitalization occurred in 80% of the 99 cases of hepatic VOD that were retrospectively reported in the pharmacovigilance program. Over 66% of these patients died as a result of hepatic VOD. [1]

- A European safety assessment reported an incidence of hepatic VOD of 1% when there was no prior or subsequent hematopoietic stem cell transplant (HSCT) surrounding gemtuzumab ozogamicin (Mylotarg) administration, 19% in patients with a HSCT prior to gemtuzumab ozogamicin (Mylotarg) administration, and 16% when HSCT was received after gemtuzumab ozogamicin (Mylotarg) administration. [1]
Although dosing of gemtuzumab ozogamicin (Mylotarg) varies from that which was originally approved in 2000, the risk of hepatic VOD remains an active concern as it has also been reported with the newly approved dosing. There are post-marketing requirements in place to attempt to better quantify the risk. [7]

**Dosing** [4]

<table>
<thead>
<tr>
<th>Setting</th>
<th>Dose</th>
<th>Schedule</th>
<th>Cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly diagnosed AML, with daunorubicin and cytarabine (adults)</td>
<td>3 mg/m² (up to 4.5 mg)</td>
<td>Days 1, 4, and 7</td>
<td>1 induction cycle</td>
</tr>
<tr>
<td></td>
<td>3 mg/m² (up to 4.5 mg)</td>
<td>Day 1 only</td>
<td>2 consolidation cycles</td>
</tr>
<tr>
<td>Newly diagnosed AML, with daunorubicin and cytarabine (pediatric patients)</td>
<td>3 mg/m² (when BSA ≥ 0.6 m²)</td>
<td>Once in combination with standard chemotherapy</td>
<td>1 induction cycle</td>
</tr>
<tr>
<td></td>
<td>0.1 mg/kg (when BSA &lt; 0.6 m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 mg/m² (when BSA ≥ 0.6 m²)</td>
<td>Once in combination with standard chemotherapy</td>
<td>1 intensification cycle (no Mylotarg in first or third intensification cycles; during intensification cycle 2 only)</td>
</tr>
<tr>
<td></td>
<td>0.1 mg/kg (when BSA &lt; 0.6 m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newly diagnosed AML, as a single agent (adults)</td>
<td>6 mg/m²</td>
<td>Day 1</td>
<td>1 induction cycle</td>
</tr>
<tr>
<td></td>
<td>3 mg/m²</td>
<td>Day 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 mg/m²</td>
<td>Day 1, every 4 weeks</td>
<td>Up to 8 (maintenance)</td>
</tr>
<tr>
<td>Newly diagnosed AML, as a single agent (adults or pediatric patients)</td>
<td>3 mg/m² (up to 4.5 mg)</td>
<td>Days 1, 4, and 7</td>
<td>Single cycle</td>
</tr>
</tbody>
</table>

**Key:** AML=acute myeloid leukemia; BSA=body surface area

**Cross References**

- Daurismo, glasdegib, Medication Policy Manual, Policy No. dru585
- Idhifa, enasidenib, Medication Policy Manual, Policy No. dru524
- Rydapt, midostaurin, Medication Policy Manual, Policy No. dru522
- Tibsovo, ivosidenib, Medication Policy Manual, Policy No. dru558
- Venclexta, venetoclax, Medication Policy Manual, Policy No. dru462
- Vyxeos, daunorubicin liposomal and cytarabine liposomal injection, Medication Policy Manual, Policy No. dru531
- Xospata, gilteritinib, Medication Policy Manual, Policy No. dru586

**Codes**

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<tr>
<th>Codes</th>
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<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J9203</td>
<td>Mylotarg, gemtuzumab ozogamicin</td>
</tr>
</tbody>
</table>
References


7. Department of Health and Human Services; Food and Drug Administration; BLA 761-060 (Mylotarg, gemtuzumab ozogamicin) Approval Letter. [cited 11/29/2017]; Available from: https://www.accessdata.fda.gov/drugsatfda_docs/appletter/2017/761060Orig1s000Orig2s000lt r.pdf

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
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<tbody>
<tr>
<td>10/15/2021</td>
<td>Updated COT language.</td>
</tr>
<tr>
<td></td>
<td>- Clarify the intent of criteria for relapsed/refractory AML, limited to use “as a monotherapy” (no change to policy intent).</td>
</tr>
<tr>
<td></td>
<td>- Updated quantity limitation and dosing charts with pediatric information</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>No changes to coverage criteria with this annual update.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Updated coverage criteria newly diagnosed AML to include pediatric patients 1 month of age or older, a new FDA approved indication. Added COT language.</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>Updated policy with standard language (no change to policy intent).</td>
</tr>
<tr>
<td>2/16/2018</td>
<td>New policy.</td>
</tr>
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</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Topic:** Vyxeos, daunorubicin liposomal and cytarabine liposomal for injection

**Date of Origin:** March 1, 2018

**Committee Approval Date:** October 15, 2021

**Next Review Date:** December 2022

**Effective Date:** January 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Daunorubicin liposomal and cytarabine liposomal (Vyxeos) is a combination of two chemotherapy drugs in a liposomal formulation. It is an intravenous therapy used in the treatment of some types of acute myeloid leukemia (AML).

**NOTE:** This policy does not apply to non-liposomal forms of daunorubicin (generic, J9150) or cytarabine (generic, J9100 or J9110).
Policy/Criteria

Most contracts require pre-authorization approval of daunorubicin/cytarabine (liposomal) (Vyxeos) prior to coverage.

I. **Continuation of therapy (COT):** Daunorubicin/cytarabine (liposomal) (Vyxeos) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criterion A, B, or C below are met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim. AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan. AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Daunorubicin/cytarabine (liposomal) (Vyxeos) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

   A. A diagnosis of therapy-related acute myeloid leukemia (t-AML) or AML with myelodysplasia-related changes (AML-MRC) which has not been previously treated (treatment-naïve).

   AND

   B. Daunorubicin/cytarabine (liposomal) (Vyxeos) will be used as monotherapy.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers daunorubicin/cytarabine (liposomal) (Vyxeos) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, daunorubicin/cytarabine (liposomal) (Vyxeos) will be authorized in quantities up to 9 infusions per lifetime.

IV. Daunorubicin/cytarabine (liposomal) (Vyxeos) is considered investigational when used for all other conditions, including but not limited to:

A. De-novo acute myeloid leukemia.

B. Relapsed or refractory acute myeloid leukemia of any type.

Position Statement

Summary

- Daunorubicin/cytarabine (liposomal) (Vyxeos) is a combination of two generically available cytotoxic chemotherapeutic drugs in a liposomal formulation.  
  Note: Pre-authorization is not required for generic daunorubicin or generic cytarabine.

- Daunorubicin/cytarabine (liposomal) (Vyxeos) is FDA-approved for the treatment of therapy-related acute myeloid leukemia (t-AML) or AML with myelodysplasia-related changes (AML-MRC) which has not been previously treated (treatment-naïve).

- The intent of this policy is to cover daunorubicin/cytarabine (liposomal) (Vyxeos) for the indications and regimen for which it has been shown to be safe and effective, as detailed in the coverage criteria.

- FDA-approval was based on a single pivotal phase 3 trial. This trial has not been published.

- In clinical trials, subjects were treated with up to a total of nine doses as follows: an induction cycle, an optional repeat induction cycle, and up to two consolidation cycles. There is no data to support more than 9 doses per lifetime.

- The safety and effectiveness of daunorubicin/cytarabine (liposomal) (Vyxeos) in other conditions has not been established.

- NCCN AML guideline lists daunorubicin/cytarabine (liposomal) (Vyxeos) as a category 1 recommendation for initial induction in patients 60 years and over with t-AML and AML-MRC, and as a category 2B recommendation for patients less than 60 years of age. [1]

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy [2]
- Approval was based on a Phase-III, randomized, open-label trial comparing daunorubicin/cytarabine (liposomal) (Vyxeos) to standard of care (“7+3” therapy with conventional daunorubicin and cytarabine).
- Daunorubicin/cytarabine (liposomal) (Vyxeos) was associated with an overall survival (OS) advantage (HR 0.69, 50% CI 0.52-0.9). Median survival was not different between groups (9.56 months, 95% CI 6.6-11.86 vs. 5.95 months, 95% CI 4.99 – 7.75).
- Because the pivotal trial has not been published, study details such as attrition and censoring rules are not available; confidence in these results is correspondingly low.
- The study included subjects from 60-75 years of age; the safety and efficacy of daunorubicin/cytarabine (liposomal) (Vyxeos) in younger patients has not been established.

Investigational Uses
- Phase 2 studies in de-novo and relapsed/refractory acute myeloid leukemia have not shown any difference in overall survival or 1-year survival. [3,4] Further studies are needed to assess the safety and efficacy of daunorubicin/cytarabine (liposomal) (Vyxeos) in these populations.

Cross References

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<td>HCPCS</td>
<td>J9153</td>
<td>Vyxeos, cytarabine-daunorubicin</td>
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References


Revision History

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<tr>
<td>10/15/2021</td>
<td>Updated standard COT language (no change to policy intent).</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>Updated policy with standard continuation of care (COT) language (no change to policy intent).</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>Updated policy with standard language (no change to policy intent).</td>
</tr>
<tr>
<td>02/16/2018</td>
<td>New Policy.</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Topic: Medications for Hereditary Angioedema (HAE)

- Orladeyo, berotralstat
- Kalbitor, ecallantide
- Firazyr, icatibant (brand and generic)
- Takhzyro, lanadelumab
- Berinert, plasma-derived C1-INH
- Haegarda, plasma-derived C1-INH
- Cinryze, plasma-derived C1-INH
- Ruconest, recombinant human C1-INH

Committee Approval Date: January 20, 2021  Next Review Date: January 2022

Effective Date: February 15, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Medications included in this policy are used to treat hereditary angioedema (HAE). Administration is different for each medication, and may be a subcutaneous injection (SC), intravenous injection (IV), or oral. Ecallantide (Kalbitor), icatibant (generic, Firazyr), plasma-derived C1 esterase inhibitor (pdC1-INH, Berinert), and recombinant human C1-INH (rhC1-INH, Ruconest) are approved for the treatment of HAE attacks. Lanadelumab (Takhzyro) and berotralstat (Orladeyo), are both kallikrein inhibitors, and two other forms of plasma-derived C1-INH (Haegarda and Cinryze), are approved for the prophylaxis of HAE attacks.
Policy/Criteria
Most contracts require pre-authorization approval of medications used to treat hereditary angioedema (HAE) prior to coverage.

I. Continuation of therapy (COT): Medications used to treat HAE may be considered medically necessary for COT when criterion A, B, or C below is met.
   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1, 2, and 3 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.
      AND
      3. For use of branded Firazyr: There is clinical documentation (including, but not limited to chart notes) of an intolerance or contraindication to an inactive ingredient in the generic equivalent medication icatibant.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission. For use of branded Firazyr: There is clinical documentation (including, but not limited to chart notes) of an intolerance or contraindication to an inactive ingredient in the generic equivalent medication icatibant.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Medications used to treat HAE may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, or C below are met.
   A. Hereditary Angioedema (Type I, II, or III): Acute Treatments (for “as needed” use)
      1. Icatibant (generic) may be considered medically necessary when criteria a through d are met.
      2. Recombinant human C1-INH (Ruconest), plasma-derived C1-INH (Berinert), and ecallantide (Kalbitor) may be considered medically necessary when criteria a through e are met.
3. Icatibant (brand Firazyr) may be considered medically necessary when criteria **a through d and criterion f** are met.
   a. A diagnosis of **Type I, Type II, or Type III HAE** has been established by, or in consultation with a provider specializing in allergy, immunology, or hematology.

   **AND**

   b. Clinical documentation (including, but not limited to chart notes) of serum C4 and C1-INH (antigenic or functional level) that are below the limits of the laboratory’s normal reference range (for Type I and Type II HAE only).

   **AND**

   c. Clinical documentation (including, but not limited to chart notes) of at least one of the following:
      i. Family history of HAE.
      OR
      ii. Normal level of serum C1q antigenic protein based on the laboratory’s normal reference range.

   **AND**

   d. The treatment is not used in conjunction with other HAE-specific therapies for acute treatment [e.g. plasma-derived C1-INH (Berinert), ecallantide (Kalbitor), icatibant (Firazyr), or recombinant human C1-INH (Ruconest)].

   **AND**

   e. **[Recombinant human C1-INH (Ruconest), plasma-derived C1-INH (Berinert), and ecallantide (Kalbitor) only]** Clinical documentation (including, but not limited to chart notes) confirming that generic icatibant has been ineffective, not tolerated, or contraindicated.

   **AND**

   f. **[Branded Firazyr only]** There is an intolerance or contraindication to an inactive ingredient in generic icatibant.

**B. Hereditary Angioedema (Type I or II): Prophylactic medications (for scheduled use)**

1. Plasma-derived C1-INH (Haegarda) and lanadelumab (Takhzyro) may be considered medically necessary when criteria **a through g** are met.

2. Plasma-derived C1-INH (Cimryze) and berotralstat (Orladeyo) may be considered medically necessary when criteria **a through h** are met.

   a. A diagnosis of **Type I or Type II HAE** has been established by, or in consultation with a provider specializing in allergy, immunology, or hematology.
AND

b. Clinical documentation (including, but not limited to chart notes) of serum C4 and C1-INH (antigenic or functional level) that are below the limits of the laboratory’s normal reference range.

AND

c. Clinical documentation (including, but not limited to chart notes) of at least one of the following:
   i. Family history of HAE.
   OR
   ii. Normal level of serum C1q antigenic protein based on the laboratory’s normal reference range.

AND

d. The patient has been evaluated for potentially treatable triggers of HAE attacks and is maximally managed with respect to avoiding triggers.

AND

e. A history of attacks that are considered severe with swelling of the face, throat, or gastrointestinal tract. Severe is defined as events that significantly interrupt usual daily activity despite short term symptomatic treatment, as documented in clinical documentation (including, but not limited to chart notes or HAE calendar).

AND

f. Prior treatment with attenuated androgens (e.g. danazol, stanozolol, oxandrolone) have been ineffective. If attenuated androgens are contraindicated or not tolerated than an antifibrinolytic (tranexamic acid or aminocaproic acid) must have been ineffective, contraindicated, or not tolerated. (See Appendix 1 for common oral medication dosing information).

AND

g. The treatment is not used in conjunction with other HAE-specific therapies for the prophylaxis of HAE attacks.

AND

h. [Plasma-derived C1-INH (Cinryze) and berotralstat (Orladeyo) only] Clinical documentation (including, but not limited to chart notes) confirming that treatment with at least one of the following has been ineffective, not tolerated, or contraindicated.
   i. Plasma-derived C1-INH (Haegarda)
   OR
   ii. Lanadelumab (Takhzyro)
C. **Acquired Angioedema: Acute Treatments (for “as needed” use)**

1. Icatibant (generic) may be considered medically necessary in patients with a diagnosis of acquired angioedema when criteria a through d are met.

2. Ecallantide (Kalbitor) may be considered medically necessary when criteria a through e are met.

3. Icatibant (brand Firazyr) may be considered medically necessary when criteria a through d AND f are met.
   
a. A diagnosis of acquired angioedema has been established by, or in consultation with a specialist in allergy, immunology, or hematology.

   AND
   
b. Clinical documentation (including, but not limited to chart notes) of serum C4 and C1-INH (antigenic or functional level) that are below the limits of the laboratory’s normal reference range.

   AND
   
c. The patient has been evaluated for an underlying B-cell lymphoproliferative disorder.

   AND
   
d. C1q levels are below the limits of the laboratory’s normal reference range.

   AND
   
e. **[Ecallantide (Kalbitor) only]** Clinical documentation (including, but not limited to chart notes) confirming that generic icatibant has been ineffective, not tolerated, or contraindicated.

   AND
   
f. **[Branded Firazyr only]** There is an intolerance or contraindication to an inactive ingredient in generic icatibant.

III. **Administration, Quantity Limitations, and Authorization Period**

A. Regence Pharmacy Services considers icatibant (generic, Firazyr), lanadelumab (Takhzyro), berotralstat (Orladeyo), and plasma-derived C1-INH (Haegarda) to be self-administered medications.

B. Regence Pharmacy Services considers plasma-derived C1-INH (Berinert), recombinant human C1-INH (Ruconest), and plasma-derived C1-INH (Cinryze) to be either self-administered medications or provider-administered medications.

C. Regence Pharmacy Services considers ecallantide (Kalbitor) to be a provider-administered medication.

D. When pre-authorization is approved, each drug may be covered in the following quantities and for the following authorization periods outlined in Table 1.
| Plasma-derived C1-INH (Berinert) | Initial: Berinert (pdC1-INH) may be authorized in a quantity sufficient for the treatment of three attacks per month based on a dose of 20 international units (IU) per kg of body weight per dose.  
Reauthorization: Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.  

Berinert (pdC1-INH) may be authorized in a quantity sufficient for the treatment of four to six attacks per month, based on a dose of 20 IU per kg of body weight per dose, when both criteria 1 and 2 below are met:  
A. The patient has been evaluated for potentially treatable triggers of HAE attacks and is maximally managed with respect to avoiding triggers.  
AND  
B. Prophylaxis with an oral attenuated androgen (e.g. danazol, stanozolol) or antifibrinolytic (e.g. tranexamic acid, aminocaproic acid) medication has been ineffective, is contraindicated, or not tolerated due to serious adverse events. |
| Ecallantide (Kalbitor) | Initial: Ecallantide (Kalbitor) may be authorized in a quantity sufficient for the treatment of three attacks per month (up to nine 10 mg/1 mL vials per month).  
Reauthorization: Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.  

Ecallantide (Kalbitor) may be authorized in quantities of ten to eighteen 10 mg/1 mL vials per month (up to six treatments) when both criteria 1 and 2 below are met:  
1. The patient has been evaluated for potentially treatable triggers of HAE and AAE attacks and is maximally managed with respect to avoiding triggers.  
AND  
2. Prophylaxis with an oral attenuated androgen medication (e.g. danazol, stanozolol) or antifibrinolytic (e.g. aminocaproic acid or tranexamic acid) medication has been ineffective, is contraindicated, or not tolerated due to serious adverse events. |
| Icatibant (generic, Firazyr) | Initial: Icatibant (generic, Firazyr) may be authorized in a quantity sufficient for the treatment of three attacks per month (up to three 30 mg/3 mL pre-filled syringes per month).

Reauthorization: Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement. For brand icatibant (Firazyr), there must also be documentation of an intolerance or contraindication to an inactive ingredient in generic icatibant.

Icatibant (generic, Firazyr) may be authorized in quantities of four to six 30 mg/3 mL pre-filled syringes per month when both criteria 1 and 2 below are met.

1. The patient has been evaluated for potentially treatable triggers of HAE attacks and is maximally managed with respect to avoiding triggers.

   AND

2. Prophylaxis with an oral attenuated androgen (e.g. danazol, stanozolol) or antifibrinolytic (e.g. tranexamic acid, aminocaproic acid) has been ineffective, is contraindicated, or not tolerated due to serious adverse events. |

| Recombinant human C1-INH (Ruconest) | Initial: Ruconest may be authorized in a quantity sufficient for the treatment of three attacks per month (up to six 2100 IU vials per month).

Reauthorization: Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Ruconest may be authorized in quantities of up to seven to twelve 2100 IU vials per month (a quantity sufficient for the treatment of 4 to 6 attacks) when both criteria 1 and 2 below are met:

1. The patient has been evaluated for potentially treatable triggers of HAE attacks and is maximally managed with respect to avoiding triggers.

   AND

2. Prophylaxis with an oral attenuated androgen (e.g. danazol, stanozolol) or antifibrinolytic (e.g. tranexamic acid, aminocaproic acid) has been ineffective, is contraindicated, or not tolerated due to serious adverse events. |
| Plasma-derived C1-INH (Cinryze) | Cinryze may be authorized in quantities of 1,000 units twice per week for a total of 8,000 units (16 of the 500-unit vials) every 28 days.  
**Reauthorization:** Authorization shall be reviewed at least *every six months.* Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is effective as defined by at least a 50% decrease in frequency of HAE attacks subsequent to start of therapy, significant improvement/stability in severity and duration of attacks, and clinical documentation of functional improvement/stability. |
| --- | --- |
| Plasma-derived C1-INH (Haegarda) | Haegarda may be authorized in quantities up to 60 IU per kg body weight twice weekly.  
**Reauthorization:** Authorization shall be reviewed at least *every six months.* Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is effective as defined by at least a 50% decrease in frequency of HAE attacks subsequent to start of therapy, significant improvement/stability in severity and duration of attacks, and clinical documentation of functional improvement/stability. |
| Lanadelumab (Takhzyro) | **Initial:** Lanadelumab (Takhzyro) may be authorized in quantities up to 300 mg every two weeks, for a total of 600 mg (two of the 300mg/2ml vials) every 28 days for six months.  
**Reauthorization:** Authorization shall be reviewed at least *every six months.* Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is effective as defined by at least a 50% decrease in frequency of HAE attacks subsequent to start of therapy, significant improvement/stability in severity and duration of attacks, and clinical documentation of functional improvement/stability.  
**Maintenance:** After the initial authorization, lanadelumab (Takhzyro) may be authorized in the following quantities:  
  a. Up to 300 mg every four weeks, for a total of 300 mg (one of the 300mg/2ml vials) every 28 days.  
  **OR**  
  b. Up to 300 mg every two weeks, for a total of 600 mg (two of the 300mg/2ml vials) every 28 days if clinical documentation is provided that demonstrates the patient has continued to experience HAE attacks, defined as ≥1 attack over the last 6 months, while compliant on stable lanadelumab (Takhzyro) therapy. |
Berotralstat (Orladeyo) may be authorized in quantities of up to 28 tablets every 28 days.

**Reauthorization:** Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is effective as defined by at least a 50% decrease in frequency of HAE attacks subsequent to start of therapy, significant improvement/stability in severity and duration of attacks, and clinical documentation of functional improvement/stability.

### IV. Investigational Uses

A. Combination use of acute treatments for HAE (Firazyr, icatibant, Kalbitor, Ruconest, or Berinert) is considered investigational.

B. Combination use of prophylactic treatments for HAE (Haegarda, Cinryze, Takhzyro, Orladeyo) is considered investigational.

C. Unless other specified, medications included in this policy are considered investigational when used for all other conditions, due to lack of published data, lack of high quality data, or lack of positive data, including for doses in excess of those listed in Section III, Table 1 (above). Details of select investigational uses are listed below in Table 2.
### Table 2. Investigational Uses

#### Acute Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Uses</th>
</tr>
</thead>
</table>
| **Plasma-derived C1-INH (Berinert)** | 1. Treatment of angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.  
   2. The prophylaxis of HAE attacks. |
| **Ecallantide (Kalbitor)** | 1. Treatment of angioedema due to causes other than HAE or AAE, including but not limited to drug-induced angioedema, allergic angioedema, and idiopathic angioedema.  
   2. The prophylaxis of HAE or AAE attacks |
| **Icatibant** (generic, Firazyr) | 1. Treatment of angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.  
   2. Angiotensin converting enzyme inhibitor induced angioedema.  
   3. Prophylaxis of HAE or AAE attacks.  
   4. Osteoarthritis.  
   5. Ischemic heart disease. |
| **Recombinant human C1-INH (Ruconest)** | 1. Treatment of angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.  
   2. The prophylaxis of HAE attacks. |

#### Prophylactic Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Uses</th>
</tr>
</thead>
</table>
| **Plasma-derived C1-INH (Cinryze)** | 1. Angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.  
   2. Myocardial infarction  
   3. Sepsis  
   4. Treatment of graft rejection  
   5. Prevention of transplant rejection  
   6. Stroke |
| **Plasma-derived C1-INH (Haegarda)** | 1. Angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema  
   2. Myocardial infarction  
   3. Sepsis  
   4. Treatment of graft rejection  
   5. Prevention of transplant rejection  
   6. Stroke |
<table>
<thead>
<tr>
<th>Lanadelumab (Takhzyro)</th>
<th>1. Angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berotralstat (Orladeyo)</td>
<td>1. Angioedema due to causes other than HAE, including but not limited to drug-induced angioedema, acquired angioedema, allergic angioedema, and idiopathic angioedema.</td>
</tr>
</tbody>
</table>

**Position Statement**

**Summary**
- HAE is a rare and potentially life-threatening genetic blood disease characterized by inadequate or non-functional C1-INH proteins in the blood. C1-INH protein is a normal component of blood that helps regulate the inflammatory and clotting systems.
- The intent of the policy is to allow for coverage of HAE therapies for the specific diagnoses for which they have been studied when managed by a specialist (as outlined in the coverage criteria), and to limit coverage to doses studied and shown to be safe and effective in clinical trials.
- HAE is diagnosed with clinical presentation, family history and low serum levels of C4 and C1-INH antigenic proteins. If acquired angioedema (AAE) is suspected due to lack of family history or late onset of symptoms (age over 40 years), C1q antigenic protein testing is used to rule out AAE. Serum C1q level is low in patients with AAE but normal in patients with HAE.
- The symptoms of HAE attacks vary in location and severity. They are highly unpredictable even within the same individual. Symptoms can range from swelling in the extremities or gastrointestinal tract to cases involving the face and throat which are less frequent but could be life threatening.
- Treatment strategies for HAE include long-term prevention, short-term prevention, and on-demand treatment for acute HAE attacks. Medications used in HAE management (other than oral medications) are associated with high healthcare costs.
- Berinert, Icatibant (Firazyr and generics), Ecallantide (Kalbitor), and Ruconest are FDA-approved for the on-demand treatment of HAE attacks. However, unlike other on-demand treatment options, the effectiveness of Ruconest for the treatment of laryngeal attacks has not been established. Generic icatibant is the lowest cost of all available options.\[1\]
- Cinryze, Haegarda, lanadelumab (Takhzyro), and berotralstat (Orladeyo) are FDA approved for the prophylaxis of HAE attacks. Based on clinical trials, none of the products are superior in terms of safety or efficacy, however, Haegarda and lanadelumab (Takhzyro) are the lowest costs. Haegarda, lanadelumab, and berotralstat may be self-administered.
- For acute attacks, it is recommended that treatment be initiated as early as possible. Treatment options include Berinert, Ecallantide (Kalbitor), Icatibant (Firazyr) and Ruconest. There were no preferences given to these acute treatment options. \[2\]
- Patients with frequent attacks, attacks involving swelling of the face or throat, or incapacitating gastrointestinal attacks may benefit from long-term preventive therapy.
- Patients who are not on long-term preventive therapy that are undergoing surgical or dental procedures may benefit from short-term preventive therapy.
- Strategies in managing HAE should be focused on avoiding or treating triggers and utilizing oral attenuated androgen as first line therapy where indicated.
- Although the World Allergy Organization/European Academy of Allergy and Clinical Immunology (WAO/EAACI) guidelines recommend C1-INH as first line long-term prophylaxis over attenuated androgens, attenuated androgens have a long-standing track record as an established treatment to prevent HAE attacks and are significantly less costly. The American Academy of Allergy, Asthma and Immunology (AAAAI) state that both C1-INH and attenuated androgens are effective for prevention of HAE attacks, and do not recommend one prophylactic treatment over another.
- AAE is a rare disorder similar to HAE, as characterized by recurrent episodes of swelling and a deficiency of C1-INH, although AAE develops in older patients and is often associated with lymphoproliferative disorders.
- Treatment options for the management of AAE are limited. There are no FDA-approved therapies for AAE and treatment is extrapolated from that of HAE. While no controlled studies have been performed in patients with AAE, observational data from case studies has demonstrated that ecallantide (Kalbitor), icatibant (Firazyr), Berinert (plasma-derived C1-INH), and Ruconest (recombinant human C1-INH) were successfully used to treat AAE attacks. Expert consensus recommendations include these agents for the treatment of AAE. Additionally, management of the underlying lymphoproliferative disorder may control angioedema symptoms.
- Given the high cost of medications for the treatment of HAE and AAE, confirmation of efficacy and that current medical necessity criteria are met is required.

**Guidelines**

- WAO/EAACI and AAAAI guidelines recommend that HAE attacks be treated as early as possible, and that all attacks be considered for on-demand treatment. There is no recommendation on the specific agent used for on-demand therapy.
- C1-INH medications are recommended as first line therapy for long-term prophylaxis, with attenuated androgens and antifibrinolytics recommended as second and third line, respectively, in WAO/EAACI guidelines. AAAAI guidelines state that both C1-INH and attenuated androgens are effective for long-term efficacy of HAE attacks and do not recommend one over the other.
- Prophylactically dosed attenuated androgens have demonstrated effectiveness in reducing the number of HAE attacks and are significantly less costly. Adverse androgenic and anabolic effects may limit their use in certain populations and careful surveillance/monitoring for adverse events is important.
- WAO/EAACI and AAAAI guidelines do not specifically recommend when to initiate prophylaxis and the decision should reflect the needs of the individual patient.
Guidelines have not been updated since the approval of lanadelumab or berotralstat.

*Other medications used for the management of HAE* [1]

- Attenuated androgens have a long history of use and are recommended for the prophylaxis of HAE attacks. Attenuated androgens increase the production of C1-INH protein in the liver. Danazol and stanozolol are well recognized for the prevention of HAE attacks. Stanozolol is no longer available commercially at this time, but can be compounded. [1]
- Low-dose danazol has been shown to be safe and effective in for both long-term and short-term prevention in pediatric patients.
- Oxandrolone is FDA approved for weight gain in pediatric patients and may be considered as an alternative androgen for the prevention of HAE attacks in children based on case reports. [7,8]
- Attenuated androgens are contraindicated in pregnant women. Doses above 200 mg/day should be avoided in prepubescent adolescents due to side effects on growth and development.
- Aminocaproic acid and tranexamic acid have been reported for use in prevention of HAE attacks based on low quality evidence and expert consensus. [1,2,9] Serious side effects have been associated with the use of these antifibrinolytic agents; however, these are rare.

**Diagnosis**

- HAE is diagnosed with clinical presentation, family history, and low serum levels of C4 and C1-INH antigenic proteins (for Type I and Type II only). HAE with normal C1-INH (also called Type III) is a subset of HAE that may be caused by a mutation in coagulation factor XII. [10,11]
- If acquired angioedema (AAE) is suspected due to lack of family history or late onset of symptoms (age over 40 years), C1q antigenic protein testing is used to rule out AAE. Serum C1q level is low in patients with AAE but normal in patients with HAE. [1]

**Clinical Efficacy – Acute Treatments**

- Berinert, Ruconest, Icatibant (Firazyr), and Ecallantide (Kalbitor) have all demonstrated efficacy in the treatment of acute attacks of HAE. While the body of evidence is generally considered low quality evidence, the products have demonstrated an overall improvement in symptoms following an HAE attack.
- However, the evidence for efficacy of Ruconest contains several notable limitations.
  * Based on a subgroup analysis of the phase 3 trials, there appeared to be decreased efficacy in women and patients located in the United States. While the reason for the difference in treatment effect is unknown, there is uncertainty regarding the clinical effect of Ruconest.
  * Additionally, the effectiveness of Ruconest for the treatment of laryngeal attacks has not been established.
There are no head-to-head studies comparing treatments for acute HAE attacks.

The treatment effect of both preventative and on-demand therapies in Type III HAE is uncertain; however, due to the possible influence of bradykinin in some of these patients, Ecallantide (Kalbitor) and Icatibant (Firazyr) are among the possible treatment options. [4]

Clinical Efficacy – Haegarda

Approval for Haegarda (pdC1-INH) was based on the COMPACT study, which was a phase 3 randomized, double-blind, placebo-controlled, cross-over study. The study evaluated two doses of Haegarda, but the FDA approved dose is 60 IU/kg. [12]

* Patients received twice weekly injections of either placebo or weight-based Haegarda (pdC1-INH).

* Patients included in the study had a history of at least four HAE attacks in the over a 2-month period within 3 months of screening. Attacks must have required immediate treatment, medical attention, or caused significant functional impairment.

* Patients were permitted to continue oral prophylaxis, but dose changes were not allowed during the study period.

* Haegarda (pdC1-INH) 60 IU/kg reduced the median number of HAE attacks by 95% compared to placebo. The mean number of attacks per month was 0.52 in the Haegarda (pdC1-INH) period compared to 4.03 during the placebo period. Use of rescue medication was also significantly lower while patients received Haegarda (pdC1-INH).

* A lower dose of 30 IU/kg was also found to be effective versus placebo but was less effective than the 60 IU/kg dose.

There are no studies to date evaluating the efficacy of Haegarda (pdC1-INH) compared to other standard treatments for prevention of HAE attacks; however, the COMPACT study included patients who received concomitant attenuated androgens.

No comparative studies have been performed between attenuated androgens and either Haegarda (pdC1-INH) or Cinryze (pdC1-INH).

Clinical Efficacy – Cinryze

FDA approval for Cinryze was based on one clinical trial in HAE attack prevention. The study was a prospective, randomized, double-blinded, placebo-controlled multi-center crossover study with 22 HAE patients aged ≥ 6 years of age (range 9 to 73 years) for a 24-week period (12-week placebo and 12-week C1-INH).

* Patients received twice weekly injections of either placebo or 1,000 units of C1-INH.

* Patients included in the study had a history of at least two HAE attacks per month. Inclusion was not dependent on the severity of attack.
Patients were permitted to continue current medications, but dose changes to androgen or aminocaproic acid were not allowed during the study or 30-days prior to the study.

Cinryze (pdC1-INH) reduced the number of HAE attacks by 52% (primary endpoint), the severity of HAE attacks by 32% and duration of swelling by 66% (secondary endpoints). All values were statistically significant.

Only half of study patients responded with a 50% or greater reduction in frequency of HAE attacks.

Clinical Efficacy – Lanadelumab\textsuperscript{[13-15]}

- FDA approval for lanadelumab was based on one randomized phase 3, double-blind, placebo-controlled trial; the HELP trial. The study evaluated various dosing regimens of lanadelumab. The FDA approved dose of 300 mg every 2 weeks was evaluated for prophylaxis of HAE attacks.
  * Patients included in the study had a history of at least one HAE attacks per 4 weeks.
  * Patients were not permitted to continue current prophylactic medications
  * Treatment with lanadelumab 300 mg subcutaneously every 2 weeks significantly reduced the number of attacks versus placebo (0.257 attacks vs. 1.967, respectively; p < 0.001).
  * Treatment with lanadelumab 300 mg subcutaneously every 4 weeks significantly reduced the number of attacks versus placebo (0.526 attacks vs. 1.967, respectively; p < 0.001).
  * Treatment with lanadelumab 150 mg subcutaneously every 4 weeks significantly reduced the number of attacks versus placebo (0.480 attacks vs. 1.967, respectively; p < 0.001).
  * Additionally, the lanadelumab group had less rescue medication use and a lower number of moderate to severe HAE attacks compared to the placebo-group.

- In patients with no HAE attacks in the past 6-months while on lanadelumab, a dose reduction to 300mg every 4 weeks has been shown to be safe and effective.

- No comparative studies have been performed between attenuated androgens, C1-INH, and lanadelumab.

- Doses higher than 300 mg every 2 weeks were not studied during clinical trials.

Clinical Efficacy – Berotralstat \textsuperscript{[26]}

- FDA approval for berotralstat was based a single phase 3, multicenter, randomized, double-blind, placebo-controlled trial; the APEX-2 trial. The study evaluated two doses of berotralstat.
  * Patients included in the study had a history of at least one HAE attacks per 4 weeks (≥2 investigator confirmed HAE attacks in the 56-day run-in period).
Patients were not permitted to continue current prophylactic medications.

- Treatment with berotralstat 110 mg by mouth every day significantly reduced the monthly rate of attacks versus placebo (1.65 attacks vs. 2.35, respectively; \( p = 0.024 \)).
- Treatment with berotralstat 150 mg by mouth every day significantly reduced the monthly rate of attacks versus placebo (1.31 attacks vs. 2.35, respectively; \( p < 0.001 \)).
- Additionally, the berotralstat groups had less rescue medication use compared to the placebo-group.

- No comparative studies have been performed between attenuated androgens, C1-INH, lanadelumab and berotralstat.
- Doses higher than 150 mg every day were not studied during clinical trials.

**Investigational Uses**

- C1-INH is currently being studied in a variety of other conditions including angioedema due to causes other than HAE, myocardial infarction, and sepsis; however, due to lack of published data, it is considered investigational in these conditions.
- Icatibant (Firazyr) is currently being studied in a variety of other conditions including angioedema due to causes other than HAE, prevention of HAE attacks, osteoarthritis, and ischemic heart disease; however, due to lack of published data, it is considered investigational in these conditions.

**Safety**

- The most common adverse reactions with Berinert are injection site nausea, headache, dysgeusia, abdominal pain, and vomiting. Other rare but serious adverse events include hypersensitivity and thromboembolic events. There is also a risk for the transmission of infectious agents (e.g. viruses) because Berinert is derived from human blood.\(^{[16]}\)
- The most common adverse reactions with Ruconest are headache, nausea, and diarrhea. Other rare but serious adverse events include hypersensitivity and thromboembolic events.\(^{[17]}\)
- The most common adverse reactions with Icatibant (Firazyr) are injection site reactions (97%), such as erythema (redness of skin) and swelling. Other common adverse reactions (> 1%) included pyrexia, increased liver enzymes, dizziness, and rash.\(^{[18]}\)
- Ecallantide (Kalbitor) is given subcutaneously and carries a boxed warning for anaphylactic reactions (3.9%). Due to the risk of anaphylaxis ecallantide Kalbitor should only be administered by a healthcare professional with appropriate medical support to manage anaphylaxis and hereditary angioedema.\(^{[19]}\)
- The most common adverse reactions with ecallantide (Kalbitor) are headache, nausea, diarrhea, pyrexia, injection site reactions, and nasopharyngitis.\(^{[19]}\)
- The most common adverse events reported with plasma-derived Haegarda include injection site reactions, hypersensitivity, nasopharyngitis, and dizziness. Of the injections site reactions reported in clinical trials, 95% were of mild intensity and 83% resolved within one day of onset.\(^{[20]}\)
- The most common side effects experienced during lanadelumab clinical trials included injection site reactions, rash, dizziness, upper respiratory infections, headache, diarrhea and myalgia.\cite{15}

- The most common side effects experienced during berotralstat clinical trials included upper respiratory tract infection, nausea, abdominal pain, diarrhea, headache, and back pain.

- Plasma-derived C1-INH replacement therapy has a long history of use without evidence of drug interactions or immunogenicity. No cases of pathogen transmission have been reported.\cite{1}

### Appendix 1: Oral Prophylactic Medications for Hereditary Angioedema \cite{22-24}

<table>
<thead>
<tr>
<th>Drug</th>
<th>Usual Adult Dose</th>
<th>Dosage Range</th>
<th>FDA Approved for HAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>danazol (Danocrine)</td>
<td>200 mg/day</td>
<td>100 mg every 3 days – 600 mg/day</td>
<td>Yes</td>
</tr>
<tr>
<td>stanozolol (Winstrol)</td>
<td>2 mg/day</td>
<td>1 mg every 3 days – 6 mg/day</td>
<td>Yes</td>
</tr>
<tr>
<td>oxandrolone (Oxandrin)</td>
<td>10 mg/day</td>
<td>2.5 mg every 3 days – 20 mg/day</td>
<td>No</td>
</tr>
<tr>
<td>epsilone aminocaproic acid (Amicar)</td>
<td>2 g three times/day</td>
<td>1 g twice/day – 4 g three times/day</td>
<td>No</td>
</tr>
<tr>
<td>tranexamic acid (Lysteda)</td>
<td>20-50 mg/kg/day</td>
<td>3-6 g/day maximum</td>
<td>No</td>
</tr>
</tbody>
</table>

### Appendix 2: FDA-Approved, HAE-specific Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Indication</th>
<th>Usual Dose and Route</th>
<th>Approved for Self-Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalbitor (ecallantide)</td>
<td>Treatment of acute attacks</td>
<td>30 mg injected subcutaneously in three 10 mg injections</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>of HAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firazyr (icatibant)</td>
<td>Treatment of acute attacks</td>
<td>30 mg injected subcutaneously to the abdominal area</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>of HAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berinert (pdC1-INH)</td>
<td>Treatment of acute attacks</td>
<td>20 IU per kg injected intravenously</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>of HAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruconest (rhC1-INH)</td>
<td>Treatment of acute attacks</td>
<td>50 IU per kg injected intravenously; Max dose 4200 IU</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>of HAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cinryze</td>
<td>Routine prophylaxis to</td>
<td>1000 U IV twice weekly</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Appendix 2: FDA-Approved, HAE-specific Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Indication</th>
<th>Usual Dose and Route</th>
<th>Approved for Self-Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>(IV plasma-derived C1-INH) [25]</td>
<td>prevent HAE attacks</td>
<td>(every 3 to 4 days)</td>
<td></td>
</tr>
<tr>
<td>Haegarda (SC plasma-derived C1-INH) [20]</td>
<td>Routine prophylaxis to prevent HAE attacks</td>
<td>60 IU/kg SC twice weekly (every 3 to 4 days)</td>
<td>Yes</td>
</tr>
<tr>
<td>Takhzyro (lanadelumab) [15]</td>
<td>Routine prophylaxis to prevent HAE attacks</td>
<td>300mg SC every two weeks</td>
<td>Yes</td>
</tr>
<tr>
<td>Orladeyo (berotralstat)</td>
<td>Routine prophylaxis to prevent HAE attacks</td>
<td>150mg PO daily</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J1290</td>
<td>Injection, ecallantide (Kalbitor), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0593</td>
<td>Injection, lanadelumab-flyo (Takhzyro), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0597</td>
<td>Injection, c-1 esterase inhibitor (human), Berinert, 10 units</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0598</td>
<td>Injection, c-1 esterase inhibitor (human), Cinryze, 10 units</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0596</td>
<td>Injection, c1 esterase inhibitor (recombinant), Ruconest, 10 unit</td>
</tr>
</tbody>
</table>

### Cross References

None

### References


13. Johnston, D. Efficacy of lanadelumab in patients switching from long-term prophylaxis with C1-inhibitor (C1-INH): results from the phase 3 HELP Study. Journal of Allergy and Clinical Immunology. 2018;141(2):AB47. PMID:


15. Takhzyro [prescribing information]. Lexinton, MA: Shire; August 2018

16. Berinert [prescribing information]. Kankakee, IL: CSL Behring; September 2017

17. Ruconest [prescribing information]. Bridgewater, NJ: Pharming; March 2018

18. Firazyr [prescribing information]. Lexington, MA: Shire; December 2015


20. Haegarda [prescribing information]. Kankakee, IL: CSL Behring; October 2017


25. Cinryze [prescribing information]. Lexington, MA: Shire; June 2018

## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 1/20/2021     | - Added berotralstat (Orladeyo), a newly-approved medication, to the policy.  
- Added generic icatibant step therapy requirement for all acute HAE therapies.  
- Removed Haegardena step therapy requirement for lanadelumab (Takhzyro).  
- Clarified reauthorization criteria and quantity limits for maintenance lanadelumab (Takhzyro) therapy. |
| 1/22/2020     | - Added step therapy requirement with generic icatibant to brand icatibant (Firazyr).  
- Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |
| 1/31/2019     | No criteria changes with this annual update. |
| 11/16/18      | Added lanadelumab (Takhzyro), a newly-approved medication, to the policy (effective January 1, 2019). |
| 2/19/18       | - New policy (effective July 1, 2018): All existing HAE policies have been combined into a single policy, with no overall change to the intent of coverage criteria.  
- Added a criterion clarifying that multiple treatments for acute attacks of HAE should not be used concurrently.  
- Extended the authorization period to 6 months from 3 months for all medications. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru538

Topic: Monoclonal antibodies for asthma and other immune conditions

- Cinqair, reslizumab
- Fasenra, benralizumab
- Nucala, mepolizumab
- Tezspire, tezepelumab
- Xolair, omalizumab

Date of Origin: April 1, 2018

Committee Approval Date: June 17, 2022

Next Review Date: March 2023

Effective Date: July 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Medications included in this policy are monoclonal antibodies that target specific proteins to treat several immune diseases such as severe eosinophilic asthma and chronic idiopathic urticaria. Administration is via subcutaneous (SC) or intravenous (IV) injection.
Policy/Criteria

Most contracts require pre-authorization approval of monoclonal antibodies for asthma and other immune conditions prior to coverage.

I. Continuation of therapy (COT): Monoclonal antibodies for asthma and other immune conditions may be considered medically necessary for COT when criteria A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. For provider-administered medications, excluding Tezspire (tezepelumab): site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve) patients: Monoclonal antibodies for asthma and other immune conditions may be considered medically necessary when criteria A and B below are met.
A. One of the following diagnostic criterion 1 through 5 below are met.

1. **Asthma:**
   - Fasenra (benralizumab), Nucala (mepolizumab), Cinqair (reslizumab), or Xolair (omalizumab), or Tezspire (tezepelumab) may be considered medically necessary for severe asthma when there is clinical documentation (including, but not limited to chart notes) that criteria a through f below are met.
   
   a. Patient is currently followed by an asthma specialist (allergist, immunologist, or pulmonologist).

   **AND**

   b. Adherent use of maximally tolerated inhaled corticosteroids (ICS) and long-acting inhaled beta-2 agonist (LABA) therapy (see Appendix 2) has been ineffective as defined by at least one of the following markers of uncontrolled asthma within the previous 12 months (as defined in criterion i, ii, or iii below):
      
      i. Treatment with a course of oral corticosteroids (e.g., steroid bursts).
      
      OR
      
      ii. An emergency department (ED) visit or hospitalization.
      
      OR
      
      iii. There is clinical documentation of poor asthma control as demonstrated by limitation of activities of daily living (ADLs), nighttime awakening, or dyspnea.

   **AND**

   c. An evaluation has been performed to assess for underlying conditions or triggers for asthma or pulmonary disease. If identified, a documented plan is in place to address these.

   **AND**

   d. *[For Fasenra (benralizumab), Nucala (mepolizumab), and Cinqair (reslizumab) only]:*
      
      A blood eosinophil count of at least 150 cells/µL in the past 12 months.

   **AND**

   e. *[For Xolair (omalizumab) only]:*
      
      A diagnosis of severe extrinsic (allergic) asthma and criteria i and ii below are met:
      
      i. Positive skin prick test or in-vitro specific IgE test (such as RAST, MAST, FAST, ELISA) to one or more allergens, (or is currently receiving specific immunotherapy like allergy shots) which support the patient's clinical history.
AND

ii. Total serum IgE level is one of the following (1 or 2 below):
1) For patients ≥12 years of age: 30 to 700 IU/ml
   OR
2) For patients age 6 to <12 years of age, based on weight, as follows in a) to g) below:
   a) >90 to 150 kg: 30 to 300 IU/ml.
   b) >70 to 90 kg: 30 to 500 IU/ml.
   c) >60 to 70 kg: 30 to 600 IU/ml.
   d) >50 to 60 kg: 30 to 700 IU/ml.
   e) >40 to 50 kg: 30 to 900 IU/ml.
   f) >30 to 40 kg: 30 to 1,100 IU/ml.
   g) 20 to 30 kg: 30 to 1,300 IU/ml.

AND

f. [For Tezspire (tezepelumab) only]:
   At least one of criteria i or ii below are met:
   i. A diagnosis of non-eosinophilic or non-allergic asthma (does not meet Asthma criteria d or e above) AND is not oral corticosteroid dependent (taking 5mg of prednisone or equivalent daily for past 4 weeks).
   OR
   ii. Treatment with at least one monoclonal antibody for severe asthma listed below has been ineffective, not tolerated, or is contraindicated.

<table>
<thead>
<tr>
<th>Xolair (omalizumab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasenra (benralizumab)</td>
</tr>
<tr>
<td>Nucala (mepolizumab)</td>
</tr>
<tr>
<td>Cinqair (reslizumab)</td>
</tr>
<tr>
<td>Dupixent (dupilumab)</td>
</tr>
</tbody>
</table>

OR

2. Chronic Idiopathic/Spontaneous Urticaria (CIU/CSU):

Xolair (omalizumab) may be considered medically necessary for CIU/CSU when there is clinical documentation (including, but not limited to chart notes) that criteria a through f below are met.

a. Patient is currently followed by a specialist (allergist, immunologist, pulmonologist, dermatologist).
AND
b. An evaluation has been performed to rule out other causes of urticaria and identify potential triggers.

AND
c. Spontaneous urticarial flares, in the absence of potential triggers (despite avoidance of triggers).

AND
d. Underlying conditions or identified triggers for urticaria are being maximally managed.

AND
e. Documented functional impairment due to poor urticaria control or exacerbations, which may include (but is not limited to) documentation of limitation of activities of daily living (ADLs), such as missing school or work or insomnia due to itching.

AND
f. The patient is compliant with H1 antihistamines (see Appendix 1) at the maximally tolerated doses, unless contraindicated.

PLEASE NOTE: Clinical documentation of initial urticaria workup, as well as subsequent visits, should be submitted for review.

OR
3. Eosinophilic Granulomatosis with Polyangiitis (EGPA, formerly known as Churg-Strauss Syndrome):

Nucala (mepolizumab) may be considered medically necessary for EGPA when there is clinical documentation (including, but not limited to chart notes) that criteria a, b, and c below are met.

a. A specialist (allergist, immunologist, pulmonologist, or rheumatologist) has established the diagnosis and is currently following the patient.

AND
b. The patient has a diagnosis of EGPA confirmed by either criterion i or ii below:

i. The patient meets at least four of the six criteria (1 to 6) below:

1) History of asthma (wheezing or the finding of diffusion high-pitched wheezes in expiration).
2) Blood eosinophil count of greater than 10% (% EOS) on differential white blood count (diff WBC).
3) Peripheral neuropathy.
4) Migratory or transient pulmonary opacities detected radiographically (such as on chest X-ray; CXR).
5) Paranasal sinus abnormality.
6) Blood vessel biopsy (such as artery, arteriole, or venule) with extravascular eosinophils.

OR

ii. The patient meets ALL of the following criteria 1, 2, and 3 below:

1) Medical history of asthma.

AND

2) Peak blood eosinophil count of greater than 1500 cells/microliter.

AND

3) Systematic vasculitis involving two or more extrapulmonary organs.

AND

c. The patient has a history of EGPA for at least 6 months with a history of relapsing or refractory disease and criteria i and ii below are met.

i. Currently on maximally tolerated oral corticosteroid within the past 90 days, unless not tolerated or contraindicated.

AND

ii. Treatment with an oral DMARD (such as azathioprine or methotrexate) in the past 90 days has been ineffective, not tolerated, or all oral DMARDs are contraindicated.

OR

4. Hypereosinophilic Syndrome (HES):

Nucala (mepolizumab) may be considered medically necessary for HES when there is clinical documentation (including, but not limited to chart notes) that criteria a, b, and c below are met.

a. A specialist (allergist, dermatologist, immunologist, hematologist, neurologist, or pulmonologist) has established the diagnosis and is currently following the patient.

AND

b. The patient has a diagnosis of HES and criteria i and ii below are met.

i. FIP1L1-PDGFRA–negative.

AND

ii. Peak blood eosinophil count of greater than 1000 cells/microliter.

AND

c. The patient has a history of flares and criteria i and ii below are met.
i. Treatment with an adequate course of oral corticosteroids within the past 6 months, unless not tolerated or contraindicated.

AND

ii. Treatment with one of the following within the past 6 months has been ineffective, not tolerated, or all are contraindicated:
   1. Hydroxyurea.
   OR
   2. Other immunomodulating therapy for HES (including, but not limited to chlorambucil or vincristine).
   OR
   3. Interferon alpha.

OR

5. Nasal Polyps:

Xolair (omalizumab) or Nucala (mepolizumab) may be considered medically necessary for nasal polyps when there is clinical documentation (including, but not limited to chart notes) that criteria a through f below are met.

a. The diagnosis has been established by a specialist in allergy, immunology, or otolaryngology.

AND

b. Documented recurrent, persistent, and/or current symptomatic nasal polyps, defined as meeting one of the following (i or ii) below:
   i. The nasal polyps are currently documented as bilateral.
   OR
   ii. A history of recurrent bilateral nasal polyps, requiring more than one nasal polypectomy.

AND

c. Persistent symptomatic nasal polyps despite maximal medical treatment with both of the following (i and ii), unless ineffective, contraindicated, or not tolerated:
   i. A corticosteroid used intranasally (INCS) for at least 12 weeks, as documented by detailed chart notes, including but not limited to a non-prescription INCS, INCS eluding stent) or pharmacy claims (for prescriptions INCS).

AND

ii. At least one 5-to-14-day course of oral corticosteroids in the past two years.
d. There is a treatment plan for use in combination with an intranasal corticosteroid.

AND

e. Documented functional impairment due to CRSwNP, including but not limited to poor sleep quality, loss of smell, symptomatic nasal obstruction, and/or facial pain.

AND

f. For Xolair (omalizumab) only: Total serum IgE level is between 30 IU/ml and 1500 IU/ml.

AND

B. For provider-administered medications (per Table 1), excluding Tezspire (tezepelumab): Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers products in this policy covered per the administration and benefits as detailed in Table 1:

Table 1. Provider-versus Self-administered Products

<table>
<thead>
<tr>
<th>Provider-Administered Product</th>
<th>Coverable Self-Administered Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy Services considers the following under the medical benefit (as provider-administered medications):</td>
<td>Pharmacy Services considers the following coverable under the pharmacy benefit (as self-administered medications):</td>
</tr>
<tr>
<td>Fasenra (benralizumab) PFS</td>
<td>Fasenra (benralizumab) autoinjector</td>
</tr>
<tr>
<td>- Nucala (mepolizumab) vials</td>
<td>- Nucala (mepolizumab) autoinjector a</td>
</tr>
<tr>
<td>- Nucala (mepolizumab) autoinjector a</td>
<td>- Nucala (mepolizumab) PFS a</td>
</tr>
<tr>
<td>- Nucala (mepolizumab) PFS a</td>
<td></td>
</tr>
<tr>
<td>- Xolair (omalizumab) vials</td>
<td>Xolair (omalizumab) PFS a</td>
</tr>
<tr>
<td>- Xolair (omalizumab) PFS a</td>
<td></td>
</tr>
<tr>
<td>Cinqair (reslizumab) vials</td>
<td>- Fasenra (benralizumab) autoinjector</td>
</tr>
<tr>
<td>- Nucala (mepolizumab) autoinjector</td>
<td>- Nucala (mepolizumab) PFS</td>
</tr>
<tr>
<td>- Nucala (mepolizumab) PFS</td>
<td></td>
</tr>
<tr>
<td>Tezspire (tezepelumab) vials</td>
<td>N/A</td>
</tr>
<tr>
<td>Tezspire (tezepelumab) PFS</td>
<td></td>
</tr>
</tbody>
</table>

a Pharmacy Services considers this product coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication).

PFS = pre-filled syringe

September 1, 2022

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Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.
B. When pre-authorization is approved, each drug will be covered in the following quantities and for the following authorization periods outlined in Table 2.

<table>
<thead>
<tr>
<th>Table 2. Authorization Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fasenra</strong> (benralizumab)</td>
</tr>
<tr>
<td><strong>Severe eosinophilic asthma:</strong></td>
</tr>
<tr>
<td>- <strong>Initial authorization:</strong> Up to 5 doses (PFS or autoinjector; dosage form per Table 1) in a 28-week period, based on recommended initial dosing of 30 mg every 4 weeks for 3 doses, followed by 30 mg every 8 weeks.</td>
</tr>
<tr>
<td>- <strong>Continued authorization:</strong> Up to 30 mg (one PFS or autoinjector; dosage form per Table 1) every 56 days.</td>
</tr>
<tr>
<td>- Authorization may be reviewed at least every 12 months to confirm that current medical necessity criteria are met and the medication is effective, defined as sustained clinical improvement from reduced asthma symptoms (such as reduced missed days from work or school) or stable asthma control.</td>
</tr>
</tbody>
</table>

| **Nucala** (mepolizumab) |
| **Severe eosinophilic asthma:** |
| - Up to 100 mg (one vial, PFS, or autoinjector; dosage form per Table 1) every 28 days. |
| - Authorization may be reviewed at least every 12 months to confirm that current medical necessity criteria are met and the medication is effective, defined as sustained clinical improvement from reduced asthma symptoms (such as reduced missed days from work or school) or stable asthma control. |

**Eosinophilic Granulomatosis with Polyangiitis (EGPA) or Hypereosinophilic Syndrome (HES):**
- Up to 300 mg (three – 100 mg vials, three – 100 mg PFS, or three – 100 mg autoinjectors; dosage form per Table 1) every 28 days for up to 6 months. |
| - Authorization shall be reviewed at least every 6 months to confirm that current medical necessity criteria are met and the medication is effective, defined as disease stability, improvement, or decreased corticosteroid dose. |

**Nasal Polyps:**
- **Initial authorization:** Up to 6 doses of 100 mg (one vial, PFS, or autoinjector; dosage form per Table 1) every 28 days for 24 weeks. |
<p>| - <strong>Continued authorization:</strong> Up to 100mg every 28 days. |
| - Authorization may be reviewed at least every 12 months. |
| - <strong>Reauthorization:</strong> Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, that there is ongoing INCS use, and that the medication is effective, defined as sustained clinical improvement from reduced symptoms from nasal polyps (such as improved sleep quality, sense of smell, reduction in nasal obstruction symptoms, and/or facial pain) or stable CRSwNP control. |</p>
<table>
<thead>
<tr>
<th>Table 2. Authorization Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Xolair</strong> (omalizumab)</td>
</tr>
<tr>
<td><strong>Severe extrinsic (allergic) asthma:</strong></td>
</tr>
<tr>
<td>- Up to 375 mg (up to three - single-dose 150 mg vials [total of 3 mL] OR two - 150 mg and one - 75 mg PFS [total of 2.5 mL]; dosage form per Table 1) every 14 days.</td>
</tr>
<tr>
<td>- Authorization <strong>may</strong> be reviewed at least every 12 months to confirm that current medical necessity criteria are met and the medication is effective defined as sustained clinical improvement from reduced asthma/symptoms (such as reduced missed days from work or school) or stable asthma control.</td>
</tr>
<tr>
<td>Chronic Idiopathic/Spontaneous urticaria (CIU/CSU):</td>
</tr>
<tr>
<td>- Up to 300 mg (two - 150 mg single-dose vials OR two – 150 mg PFS; dosage form per Table 1) every 28 days.</td>
</tr>
<tr>
<td>- Authorization <strong>may</strong> be reviewed at least every 12 months to confirm that current medical necessity criteria are met and the medication is effective defined as sustained clinical improvement from reduced urticaria symptoms (such as reduced missed days from work or school) or stable asthma control.</td>
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<tr>
<td><strong>Nasal Polyps:</strong></td>
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<tr>
<td>- <strong>Initial Authorization:</strong> Up to 600 mg (up to four - single-dose 150 mg vials [total of 4 mL] OR four - 150 mg PFS; dosage form per Table 1) every 14 days for 24 weeks.</td>
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<tr>
<td>- <strong>Continued Authorization:</strong> Up to 600 mg (up to four - single-dose 150 mg vials [total of 4 mL] OR four - 150 mg PFS; dosage form per Table 1) every 14 days.</td>
</tr>
<tr>
<td>- Authorization may be reviewed at least every 12 months.</td>
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<tr>
<td>- <strong>Reauthorization:</strong> Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, that there is ongoing INCS use and that the medication is effective defined as sustained clinical improvement from reduced symptoms from nasal polyps (such as improved sleep quality or sense of smell, reduction in nasal obstruction symptoms and/or facial pain) or stable CRSwNP control.</td>
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<tr>
<td><strong>Cinqair</strong> (reslizumab)</td>
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<tr>
<td><strong>Severe eosinophilic asthma:</strong></td>
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<tr>
<td>- Up to 3 mg/kg every 28 days.</td>
</tr>
<tr>
<td>- Authorization <strong>may</strong> be reviewed at least every 6 months to confirm that current medical necessity criteria are met and the medication is effective, defined as sustained clinical improvement from reduced asthma symptoms (such as reduced missed days from work or school) or stable asthma control.</td>
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<tr>
<td><strong>Tezepelumab</strong> (Tezspire)</td>
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<tr>
<td><strong>Severe asthma:</strong></td>
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<tr>
<td>- 210 mg (one vial or one pre-filled syringe) every 28 days.</td>
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<tr>
<td>- Authorization may be reviewed at least every 12 months to confirm that current medical necessity criteria are met and the medication is effective, defined as sustained clinical improvement from reduced asthma symptoms (such as reduced missed days from work or school) or stable asthma control.</td>
</tr>
</tbody>
</table>
IV. Not Medically Necessary Uses
A. Xolair (omalizumab) is considered not medically necessary when used for allergic rhinitis.

V. Investigational Uses
A. Combination use of any anti-IL-5, anti-IgE, anti-TSLP, or anti IL-4 monoclonal antibodies in this and other policies (see Cross References).
B. Dose escalations (such as for partial or non-response) in excess of those listed in the “Quantity Limitations,” Table 2 (above) is considered investigational for any indication.
C. Unless otherwise specified in the coverage criteria above, medications included in this policy are considered investigational when used for all other conditions, due to lack of published data, lack of high-quality data, or lack of positive data. Details of select investigational uses are listed (in Table 3) below.

<table>
<thead>
<tr>
<th>Table 3. Investigational Uses</th>
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| **Allergic bronchopulmonary aspergillosis (ABPA)** | - There is insufficient evidence to establish the efficacy of monoclonal anti-IgE or anti-IL-5 antibodies for the treatment of ABPA.  
- The one small crossover trial (n=13) found a reduction in exacerbations over a 4-month period in ABPA patients with use of high-dose Xolair (omalizumab) (750 mg monthly) (p=0.048); however, the long-term clinical benefit is unknown. Additional research is needed to clarify the safety, efficacy, and optimal dosing of Xolair (omalizumab) for ABPA. [1] |
| **Atopic dermatitis (AD)** | - There is insufficient evidence to support the use of monoclonal anti-IgE or anti-IL-5 antibodies for atopic dermatitis. [2 3]  
- Nucala (mepolizumab) has been studied in atopic dermatitis, and no significant benefit was observed. |
| **Chronic obstructive pulmonary disease (COPD)** | - There is no reliable evidence to establish efficacy or safety of monoclonal anti-IgE, anti-IL-5, or anti-TSLP antibodies for the treatment of eosinophilic COPD.  
- Nucala (mepolizumab) was studied in two phase 3 trials evaluating annual COPD exacerbation rate; however, the benefit with Nucala (mepolizumab) was not consistently demonstrated in patients with eosinophilic COPD. Despite promising results of clinical trials, high-quality, long-term clinical trials are needed to confirm efficacy and safety of Nucala (mepolizumab) in this setting. [4]  
- Additional studies are ongoing for Fasenra (benralizumab).  
- Additional studies are ongoing for Tezspire (tezepelumab). |
<table>
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<tr>
<th>Table 3. Investigational Uses</th>
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| **Eosinophilic esophagitis (EE)** | - There is no reliable evidence to establish efficacy or safety of monoclonal anti-IgE or anti-IL-5 antibodies in the treatment of eosinophilic esophagitis.  
- One small trial found no benefit of Xolair (omalizumab) in patients with eosinophilic esophagitis. [5] |
| **Eosinophilic granulomatosis with polyangiitis (EGPA) / allergic granulomatosis / Churg-Strauss syndrome** | - There are no published clinical trials evaluating the safety or efficacy of Xolair (omalizumab), Fasenra (benralizumab), and Cinqair (reslizumab) for the treatment of EGPA. Additional studies are ongoing for Fasenra (benralizumab) and Cinqair (reslizumab). [6] |
| **Peanut or other food allergies** | - There is insufficient evidence to establish the efficacy of monoclonal anti-IgE and anti-IL-5 antibodies for the treatment of food allergies.  
- Phase 2 results suggest benefits of another anti-IgE compound-TNX-901 for treatment of peanut allergy, which cannot be extrapolated to the use of Xolair (omalizumab) to protect against anaphylaxis in patients with peanut allergy. [7] |
Position Statement

Summary

- Monoclonal anti-IgE and anti-IL-5, and anti-TSLP antibodies may be covered for specific diagnoses where there is demonstrated safety and efficacy from randomized, controlled trials to support their use, including asthma and other specific indications.

* Anti-IgE monoclonal antibodies [e.g., Xolair (omalizumab)] reduces the levels of circulating immunoglobulin E (IgE) and inhibits binding of IgE to mast cells, to prevent the activation of the allergic cascade and decrease inflammation.

* Anti-IL-5 antibodies [e.g., Fasenra (benralizumab), Nucala (mepolizumab), and Cinqair (reslizumab)] prevent activation of interleukin 5 (IL-5) that is responsible for the growth and survival of eosinophils, to decrease inflammation.

* Anti-TSLP antibodies [e.g., Tezspire (tezepelumab)] prevent activation of the TSLP cytokine that is responsible for modulating the downstream pathway involved in the epithelial cell inflammatory response.[8]

* Interleukin-4 receptor antagonist [IL-4; Dupixent (dupilumab)] is also used for add-on maintenance treatment for asthma (covered in a separate policy; see Cross References).

- Asthma

* Monoclonal respiratory antibodies may be coverable for poorly controlled asthma, despite use of maximal step therapy, which includes patient compliance with therapy and an assessment for triggers, as well as a plan to control identified triggers.

* Monoclonal respiratory antibodies may be covered when there is documentation of uncontrolled severe asthma with utilization of other appropriate asthma medications, as detailed in the coverage criteria. Use of monoclonal respiratory antibodies for management outside of these criteria are not coverable.

* For severe asthma (STEP 5), Global Initiative for Asthma (GINA) guidelines recommend high-dose ICS-inhaled long-acting beta-agonist (LABA) therapy/add-on therapy with a biologic agent or tiotropium may be considered after phenotypic assessment. [9]
  - In patients with severe eosinophilic asthma uncontrolled on STEP 4-5 treatment, Nucala (mepolizumab), Cinqair (reslizumab), Fasenra (benralizumab), or Dupixent (dupilumab) are recommended as add-on treatment options. [10]
  - In patients with IgE-mediated allergic asthma uncontrolled on STEP 5 treatment, Xolair (omalizumab) is recommended as add-on therapy. [10]
  - GINA guidelines have not yet been updated to include Tezspire (tezepelumab). [11]

* Tezspire (tezepelumab) may be used as initial monoclonal respiratory antibody therapy only in patients with non-eosinophilic or non-allergic asthma that is not oral corticosteroid dependent, as detailed in the coverage criteria.
* Tezspire (tezepelumab) will only be covered in patients with severe asthma that is eosinophilic, allergic, or oral corticosteroid dependent if they have previously failed at least one other monoclonal respiratory antibody, as detailed in the coverage criteria. This is due to limited safety data and the availability of more cost-effective alternatives.

* There is insufficient evidence that any one monoclonal respiratory antibody for uncontrolled asthma is superior to another. There are no comparative trials. Based on indirect trial comparisons, the benefits are roughly equivalent (rate of exacerbations).

- **Chronic Idiopathic/Spontaneous Urticaria (CIU/CSU) (Xolair)**

* Xolair (omalizumab) may be coverable for poorly controlled chronic idiopathic urticaria despite use of maximal step therapy, which includes patient compliance with antihistamines and an assessment for other causes, including triggers, as well as a plan to control identified triggers.

* Standard of care for chronic urticaria includes identification and elimination of the underlying aggravating triggers followed by use of antihistamines.\[12\]

* Other potential therapies include leukotriene antagonists (such as montelukast), cyclosporine, dapsone, other oral DMARDs, and corticosteroids.

* All patients in clinical trials of Xolair (omalizumab) for urticaria were refractory to antihistamines.

* The goal of CIU therapy is to decrease functional impairment due to itching, hives, and other related symptoms, such as missed days from work and/or school.

- **Eosinophilic granulomatosis with polyangiitis (EGPA) (Nucala)**

* Nucala (mepolizumab) may be coverable when specific diagnostic criteria for EGPA are met and persistent disease despite use of maximal step therapy, which includes steroids and immunosuppressants (oral DMARDs).

* Glucocorticoids are the mainstay of therapy for EGPA.\[13 14\] Patients in clinical trials of Nucala (mepolizumab) for EGPA were relapsing or refractory to corticosteroids with or without immunosuppressives.

* Immunosuppressive oral DMARD therapy [e.g., azathioprine, methotrexate] is used as add-on therapy for patients with life and/or organ manifestations for maintenance of remission.

* Other second line therapy options for EGPA include rituximab, immunoglobulins, and interferon-alpha.

- **Hypereosinophilic Syndrome (HES) (Nucala)**

* Nucala (mepolizumab) may be coverable for uncontrolled HES (FIP1L1-PDGFRα–negative) despite stable background therapy for HES.

* Standard treatments for HES include oral corticosteroids, hydroxyurea, other cytotoxic therapy for HES (e.g., chlorambucil, vincristine), or interferon alpha.

- **Nasal Polyps**

* Xolair (omalizumab) and Nucala (mepolizumab) may be coverable for nasal polyps in patient who have continued symptoms and quality of life impacts despite standard management.
* Standard treatments for nasal polyps include oral corticosteroids and intranasal corticosteroids (INCS).
* Initial coverage authorization will be 24 weeks, per current guidelines to reassess effectiveness outlined in coverage criteria, as CRSwNP symptoms can resolve or medication may not provide adequate benefit.

- Monoclonal respiratory antibodies may be covered at the doses proven to be safe and effective for asthma and other associated conditions in clinical trials (as detailed in the coverage criteria above).

- **Self-administration**
  
  * Several options are now available in a single-dose pre-filled syringe (PFS) or autoinjector, are FDA-approved for self-administration, and are coverable under the pharmacy benefit, as detailed in the coverage criteria.
  * Use of self-administered options provides the best value (lower overall cost) and may offer convenience for members.
  * Provider-administered products may be needed when there is a documented reason why a patient cannot self-administer a medication (See Appendix 5).

- The safety and efficacy of monoclonal respiratory antibodies in combination with other monoclonal respiratory antibodies or in conditions not included in coverage criteria (as listed above) have not been established. There are no trials of the use of anti-asthma monoclonal antibodies as combination or sequential therapy. Additional trials are ongoing.

**Clinical Efficacy**

**ASTHMA BACKGROUND**

- Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements (multiple cytokines and mediators, as well as potentially IgE-mediated events involving mast cells and basophils) play a role (in particular, mast cells, eosinophils, T lymphocytes, macrophages, neutrophils, and epithelial cells). Eosinophilic asthma is a subphenotype of severe asthma characterized by elevated sputum and blood eosinophil levels as well as increased asthma severity, atopy, late-onset disease, and steroid refractoriness.

- IgE may be in the inflammatory cascade of some events leading to asthmatic airway inflammation. Anti-IgE monoclonal antibody, Xolair (omalizumab) binds circulating IgE.

- Anti-IL-5 monoclonal antibodies (Cinqair, Nucala, and Fasenra) specifically target formation of eosinophils and depletes blood eosinophil levels.

- Various peripheral blood eosinophil levels were studied in clinical trials. The eosinophil levels in the coverage criteria for the anti-IL-5 monoclonal antibodies are based on the efficacy data from the clinical trials of these medications and where they were found to be most effective.

- Global Initiative for Asthma (GINA) guidelines recommend STEP 5 add-on therapy with long-acting muscarinic antagonists (LAMA) such as tiotropium, anti-IgE therapy (omalizumab), anti-IL-5 therapy, or anti-interleukin-4 therapy after phenotypic assessment of asthma subtype. [15]
- There is no reliable evidence to establish efficacy or safety of monoclonal anti-IL-5 antibodies for severe allergic asthma without documentation of severe eosinophilia. [3]
- TSLP is a cytokine that is thought to stimulate the immune cascade response in epithelial cells leading to asthmatic airway inflammation. Anti-TSLP monoclonal antibody Tezspire (tezepelumab) blocks the TSLP cytokine to reduce the epithelial inflammatory response.[8]
- Tezepelumab has demonstrated efficacy in patients regardless of eosinophils or IgE levels.[16 17]
- GINA guidelines have not yet been updated to include Tezspire (tezepelumab).[11]

**Fasenra (benralizumab) for Eosinophilic Asthma**

- Two randomized, double-blinded, placebo-controlled studies (SIROCCO and CALIMA) evaluated the safety and efficacy of Fasenra (benralizumab) 30 mg in patients with severe eosinophilic asthma, uncontrolled on moderate- to high-doses ICS. [18 19]
  * The trials enrolled patients with a history of two or more asthma exacerbations requiring oral or systemic corticosteroid treatment in the past 12 months despite medium to high dose ICS/LABA. Patients were stratified by baseline blood eosinophil count (<300 or ≥300 cells/microliter).
  * The primary endpoint was reduction in asthma exacerbations for patients with baseline blood eosinophil count ≥300 cells/microliter in both studies. After 48-56 weeks, Fasenra (benralizumab) reduced the annual rate of exacerbations by 28-51% compared to placebo.
  * However, in the SIROCCO trial, only patients with a baseline blood eosinophil count ≥300 cells/microliter responded to the standard starting dose of Fasenra (benralizumab) 30 mg every 8 weeks. For patients with baseline blood eosinophil count <300 cells/microliter, response was seen only with double the dose (30 mg every 4 weeks).
- In CALIMA, patients on medium-dose ICS/LABA were included. Therefore, the generalizability of the results to patients optimized on standard STEP 5 therapy with high-dose ICS/LABA is uncertain. One double-blind, multicenter, randomized study evaluated the efficacy of Fasenra (benralizumab) on oral corticosteroid (OCS) reduction compared to placebo. [20]
  * Patients were required to have a daily oral corticosteroid dose between 7.5 to 40 mg per day in addition to high dose ICS/LABA and a baseline eosinophil count of at least 150 cells/microliter.
  * Patients in the Fasenra (benralizumab) arms (30 mg every 4 weeks or every 8 weeks) had a statistically significant reduction in daily OCS compared to placebo (75% vs. 25%, respectively). However, the external validity of the results is uncertain, given the inclusion of patients on medium-dose ICS/LABA.
- The role of Fasenra (benralizumab) for patients with a baseline blood eosinophil count of <300 cells/microliter is unclear. The overall assessment of benefit is uncertain, with inconsistent response to standard starting dosing and confounded baseline characteristics. Patients in two of the three trials were not on optimized high-dose ICS/LABA, as is the standard STEP5 (NHLBI and GINA guidance), prior to addition of anti-IL5 therapy.
In the SIROCCO trial, patients were optimized on high dose ICS/LABA. However, there was no statistical reduction in the rate of asthma exacerbations for patients with baseline blood eosinophil count of <300 in the arm of Fasenra (benralizumab) 30 mg every 8 weeks. Benefit was seen only at higher dosing (30 mg every 4 weeks). As such, Fasenra (benralizumab) is coverable only for patients with baseline blood eosinophil count of ≥300 cells/microliter. [Bleeker, PMID: 27609408]

In the CALIMA and ZONDA trials, there was statistically significant response to standard Fasenra (benralizumab) 30 mg every 8 weeks. However, patients were NOT optimized on high-dose ICS/LABA prior to enrollment. Both studies included patients on medium dose ICS/LABA, which is not reflective of Step 5 of NHLBI Guidelines for add-on IL-5 therapy. Therefore, the benefit in optimized Step 5 asthma patients with an eosinophil count of <300 is unknown.

- In CALIMA, there was a statistically significant reduction in asthma exacerbation rates for patients with baseline blood eosinophil count of <300 cells/microliter in the arm of Fasenra (benralizumab) 30 mg every 8 weeks; however, because baseline ICS/LABA was not maximized, the external validity of this finding for use in a STEP5 therapy optimized patient is unknown. [Fitzgerald, PMID 27609406]

- In ZONDA, there was a statistically significant reduction in the need for oral steroids for patients with baseline blood eosinophil count of >150 cells/microliter with Fasenra (benralizumab); however, because baseline ICS/LABA was not maximized, the external validity of this finding for use in a STEP 5 therapy optimized patient is unknown. [Nair, PMID 28530840]

**Nucala (mepolizumab) for Eosinophilic Asthma**

- One randomized, double-blinded, placebo- and active-controlled, 32-week study evaluated the safety and efficacy of Nucala (mepolizumab) 75 mg or 100 mg compared to placebo in patients with severe refractory eosinophilic asthma. [21]
  
- The trial enrolled patients with blood eosinophil counts ≥150 cells/microliter within 6 weeks of dosing or ≥300 cells/microliter within 12 months.

- The primary endpoint was frequency of asthma exacerbations. Nucala (mepolizumab) demonstrated a statistically significant reduction of annual exacerbation rates by 13% compared to placebo.

- One randomized, controlled trial evaluated the efficacy of Nucala (mepolizumab) in reducing daily oral corticosteroid dose compared to placebo. [22]

- The primary end point was percent reduction of oral corticosteroid dose during weeks 20 to 24 without loss of asthma control. Overall, Nucala (mepolizumab) achieved greater reduction in oral corticosteroid use while maintaining asthma control when compared to placebo. However, the difference between the Nucala (mepolizumab) and placebo groups was not statistically significant.

- Nucala (mepolizumab) has been studied in moderate persistent asthma, and no significant benefit was observed. [23]
Xolair (omalizumab) for Extrinsic (allergic) Asthma

- One high-quality meta-analysis evaluated the efficacy of Xolair (omalizumab) in reducing asthma exacerbations and corticosteroid use compared to placebo.
  * After 16 to 60 weeks, Xolair (omalizumab) reduced asthma exacerbations from 26% to 16% of patients suffering from an exacerbation.
  * An absolute reduction in hospitalization risk was reduced from 3% to 0.5% with Xolair (omalizumab) over 28 to 60 weeks.

- Xolair (omalizumab) increases the number of asthma patients able to reduce or withdraw their inhaled steroids and is effective in reducing asthma. [24-27]

- There is no available data demonstrating that Xolair (omalizumab) is superior to step therapy options (e.g., ICS/LABAs and oral steroids for exacerbations) recommended in treatment guidelines for moderate-to-severe persistent asthma.

- Optimal clinical response to Xolair (omalizumab) requires strict compliance with dosing, as there is a 6 to 12-week lag before beneficial effects are apparent (effects are not immediate and explain the various phases that are included in study protocols).

- Although preliminary results are promising, there is no conclusive evidence thatomalizumab is effective in patients with non-allergic (nonatopic) asthma, based on one small proof-of-concept trial. [28]

Total IgE Levels for Asthma

- Xolair (omalizumab) is only indicated in patients with elevated IgE levels and is dosed according to IgE levels between 30 to 700 IU/ml in adults with asthma. [29] There is no established dose or benefit for IgE levels outside of this range.

- Efficacy and dosing of Xolair (omalizumab) in asthma patients (>50 kg) with IgE levels less than 30 or greater than 700 have not been established. [29] The majority of data on the use of Xolair (omalizumab) in patients with baseline IgE <30 or >700 IU/ml are limited to case reports with inconsistent results of effectiveness.

- There is evidence to support the safety and efficacy of Xolair (omalizumab) in patients age 6 to less than 12 years old with a baseline IgE as follows:
  * >90 to 150 kg: baseline IgE of 30 to 300 IU/ml
  * >70 to 90 kg: baseline IgE of 30 to 500 IU/ml
  * >60 to 70 kg: baseline IgE of 30 to 600 IU/ml
  * >50 to 60 kg: baseline IgE of 30 to 700 IU/ml
  * >40 to 50 kg: baseline IgE of 30 to 900 IU/ml
  * >30 to 40 kg: baseline IgE of 30 to 1,100 IU/ml
  * 20 to 30 kg: baseline IgE of 30 to 1,300 IU/ml

As with adults, there is no established dose or benefit for IgE levels outside of this range.

- Monitoring IgE levels after administration of Xolair (omalizumab) are problematic, as IgE levels post-administration measure both bound and unbound (free) IgE.
Cinqair (reslizumab) for Eosinophilic Asthma
- Cinqair (reslizumab) has been studied in people with moderate and severe refractory eosinophilic asthma that is inadequately controlled despite use of high-dose corticosteroids and a controller medication. [30-33]
- Two double-blind, controlled studies evaluated the efficacy of Cinqair (reslizumab) 3 mg/kg compared to placebo in patients with severe eosinophilic asthma. [33]
  * Patients were required to have at least 1 asthma exacerbation requiring systematic corticosteroids.
  * The primary endpoint was frequency of asthma exacerbation. After 52 weeks, Cinqair (reslizumab) reduced the annual asthma exacerbation rate by 10-14% compared to placebo.

Tezspire (tezepelumab) for Severe Asthma [8 16 17 34-37]
- One phase III, randomized, double-blinded, placebo controlled, 52-week study (NAVIGATOR) evaluated the safety and efficacy of Tezspire (tezepelumab) 210mg every 4 weeks compared to placebo in patients with severe asthma, uncontrolled on ICS/LABA therapy.
  * The trial enrolled patients who were previously diagnosed with asthma receiving a med/high dose ICS for the past 12 months (75% of patients were on high dose ICS in both arms) and secondary controller medication (LABA) for the past 3 months. Patients must have had a history of two or more asthma exacerbations (defined as requiring either oral/systemic corticosteroids or asthma related hospital stay) in the previous 12 months. Patients were stratified by baseline blood eosinophil count (<150, 150-300,300-450, and >450 cells/μL).
  * The primary endpoints were annualized asthma exacerbations rate (AAER) overall as well as in patients with blood eosinophil counts of ≤300 cells/μL. Tezspire (tezepelumab) demonstrated a statistically significant reduction in both overall annual exacerbation rates (56%) and in patients with blood eosinophil counts of ≤300 μL (41%) when compared to placebo.
  * Sub-group analysis of patients with blood eosinophils <150 cells/μL showed a statistically significant reduction in AAER by 39% when compared to placebo.
  * The above results were supported by similar findings in a previous phase IIB randomized placebo-controlled dose optimization trial (PATHWAY). In addition, a sub-group analysis of patients with non-allergic asthma (IgE<30 IU/ml) showed a statistically significant reduction in AAER of 54% in this trial.
- One phase III, randomized, double blind, placebo-controlled trial (SOURCE trial) evaluated the efficacy of Tezspire (tezepelumab) in reducing daily oral corticosteroid dose compared to placebo.
  * The primary end point was percent reduction of oral corticosteroid dose at week 48 without loss of asthma control. Overall, Tezspire (tezepelumab) achieved a greater reduction in oral corticosteroid use while maintaining asthma control when compared to placebo. However, the difference between Tezspire (tezepelumab) and placebo groups was not statistically significant.
The use of Dupixent (dupilumab) is preferred over Tezspire (tezepelumab) for patients with severe asthma that are oral corticosteroid dependent as Dupixent (dupilumab) has shown statistically significantly efficacy in this patient population based on the phase III VENTURE trial as well as longer real-world safety and efficacy data.

- Tezspire (tezepelumab) is the first monoclonal antibody to show statistically significant reductions in AAER in patients that have non eosinophilic asthma (blood eosinophils <150cells/μL) and in patients with non-allergic asthma (IgE<30 IU/ml).

**CHRONIC IDIOPATHIC URTICARIA (CIU/CSU) BACKGROUND**

- Standard of care includes identification and elimination of the underlying aggravating triggers followed by use of antihistamines, which are FDA-approved for treatment of urticaria, and may be used at doses exceeding the manufacturer’s recommended dosages. [12]

- Second-line treatment options for antihistamine-refractory urticaria include H2-antihistamines (e.g., ranitidine, famotidine), leukotriene antagonists, cyclosporine, dapsone, other oral DMARDs/anti-inflammatories (methotrexate, sulfasalazine), and corticosteroids. The guidelines acknowledge the evidence supporting the use of these second-line therapies is of lower quality; however, their costs and safety profiles should be considered when choosing therapies. [12]

- The terms “chronic urticaria” (CU), “chronic spontaneous urticaria” (CSU), and “chronic idiopathic urticaria” (CIU) are used interchangeably, but are a frequent cause of severe chronic urticaria, lasting greater than 6 weeks. [12] However, in clinical trials, all patients had CIU symptoms for at least 6 months. [38-41]

- The diagnosis of “chronic idiopathic urticaria” requires exclusion of physical causes as a main cause of the urticaria symptoms, such as dermatographism (firm stroking), delayed pressure urticaria (pressure), cold urticaria (cold), solar urticaria (exposure to sun), or vibratory urticaria (vibration), as well as other causes [aquagenic urticaria (water exposure), cholinergic urticaria (heat, stress, exercise), exercise-induced anaphylaxis/urticaria, contact with urticariogenic substances]. Urticaria despite avoidance of triggers is a hallmark feature of CIU/CSU. [12]

- A subset of patients with a diagnosis of chronic idiopathic urticaria may have autoimmune urticaria, which can be associated with some type of trigger which can aggravate symptoms but is not the main cause of CU symptoms. Aggravating triggers may include but are not limited to extreme hot or cold, and irritation from clothing. Primary treatment for CU should include aggravating trigger control and histamine blockade. Refractory patients may be responsive to Xolair (omalizumab). [12 39 40]

**Xolair (omalizumab) for CIU/CSU**

- Two randomized, double-blinded, placebo-controlled 12- to 24-week studies evaluated the safety and efficacy of Xolair (omalizumab) in patients with refractory chronic idiopathic/spontaneous urticaria. [39 42]
* The trial enrolled patients with a urticaria activity score (UAS) >4 despite use of H1-antihistamines and a weekly itch severity score (ISS) >8.

* The primary endpoint of the study was change from baseline in weekly ISS at week 12. Additional endpoints included the change in UAS over 7 days and proportion of complete responders.

* Mean change in weekly ISS with Xolair (omalizumab) decreased by -3.0 from placebo. Although, this is a subjective endpoint with a lack of defined minimal clinically important difference, it is clinically relevant to patients. The FDA recognizes reduction of itching as the most important outcome.

- Xolair (omalizumab) may reduce urticaria severity, as measured by itch-severity score, in patients with chronic idiopathic urticaria who remained symptomatic despite use of H1-antihistamine therapy. However, Xolair (omalizumab) has not been proven to eliminate itching or improve functional impairment due to urticaria symptoms. [12 39-41]

- The efficacy or safety of Xolair (omalizumab) in other types of urticaria with a clearly defined cause, such as physical urticaria (e.g., “cold” urticaria), urticarial vasculitis, or contact urticaria, has not been established. [12 41 43] Patients with a clearly defined cause for urticaria, such as physical cause, were excluded from clinical trials. [12 39-41]

- Xolair (omalizumab) has only been studied as add-on therapy. All patients in clinical trials of Xolair (omalizumab) for chronic urticaria were refractory to antihistamines. [12] However, Xolair (omalizumab) has not been compared to the many other available therapies for antihistamine-refractory urticaria. Therefore, it is unknown if Xolair (omalizumab) is superior to these less-costly alternatives.

- IgE levels are not measured nor used as a marker for Xolair (omalizumab) therapy with urticaria.

**EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS (EGPA) BACKGROUND**

- Eosinophilic granulomatosis with polyangiitis, also known as allergic granulomatosis or Churg-Strauss syndrome, is a multisystem autoimmune syndrome characterized by eosinophil-rich granulomatosis inflammation of microscopic vessels. The respiratory tract is typically affected, and EGPA commonly includes asthma among its manifestations; however, widespread manifestations are found, including neurological, cardiac, and renal involvement.

- Classification of EGPA is most often according to 1990 classification criteria from the American College of Rheumatology. Patients with vasculitis may be classified as having EGPA if they have at least 4 of 6 typical findings: [44]
  * Asthma (a history of wheezing or finding or diffuse high-pitched wheezes on expiration).
  * Greater than 10 percent eosinophils on the differential leukocyte count.
  * Mononeuropathy (including multiplex) or polyneuropathy.
  * Migratory or transient opacities detected radiographically.
  * Paranasal sinus abnormality.
  * Biopsy containing a blood vessel showing the accumulation of eosinophils in extravascular areas.
The primary therapy for EGPA is systemic corticosteroids. An additional immunosuppressive agent (e.g., cyclophosphamide) is typically added for patients with more advanced or refractory disease and in those whose disease flares with tapering of systemic glucocorticoids. Once remission is induced, patients are switched to less toxic immunsuppressives, such as azathioprine or methotrexate, for maintenance therapy. Second or third-line drugs include rituximab, immunoglobulins, and interferon-alpha. 

**Nucala (mepolizumab) for EGPA**

- The MIRRA trial (multicenter, randomized, double-blind, controlled) evaluated the efficacy of Nucala (mepolizumab) 300 mg in patients with relapsing or refractory EGPA not optimally controlled with an oral corticosteroid with or without oral DMARDs compared to placebo. 

- The primary endpoint was total accrued weeks of remission. Nucala (mepolizumab) was found to result in significantly more weeks in remission than placebo (28% vs. 3% of patients had ≥24 weeks of accrued remission).

  * After 48 weeks, 32% of Nucala (mepolizumab) patients remained in remission allowing for reduced corticosteroid use compared to 3% of placebo patients.

- Nucala (mepolizumab) has only been studied as add-on therapy for EGPA. It has not been compared to oral DMARDs for corticosteroid-refractory EGPA. Therefore, it is unknown if Nucala (mepolizumab) is superior to these less costly alternatives.

**HYPEREOSINOPHILIC SYNDROME (HES) BACKGROUND**

- HES is a rare blood disorder. It occurs when an individual’s blood has very high numbers of eosinophils. Eosinophils make their way into various tissues, causing inflammation and eventually organ dysfunction. The most commonly involved organs in HES include the skin, lungs, heart, and nervous system.

- In approximately 75% of cases, the underlying cause is unknown. However, recent advances have led researchers to believe that eosinophilia may be due to a variety of causes including myeloproliferative disorders or other disorders that affect bone marrow (myeloproliferative HES), increased production of interleukin-5 (lymphocytic HES), or a mutation in an unknown gene passed genetically (familial HES).

- The goal of HES treatment is to reduce eosinophil levels in the blood and tissues, thereby reversing and preventing end organ tissue damage, especially in the heart.

- Standard HES treatment includes glucocorticosteroid medications such as prednisone, and chemotherapeutic agents such as hydroxyurea, chlorambucil and vincristine. Interferon-alpha may also be used as a treatment.

**Nucala (mepolizumab) for HES**

- The efficacy of Nucala (mepolizumab) in HES was evaluated in a phase 3, randomized, double-blind, placebo-controlled trial in patient with a diagnosis of FIP1L1-PDGFRA–negative HES ≥6 months.

  * HES was required to be uncontrolled (defined as a history of ≥2 flares within the past 12 months and a blood eosinophil count ≥1000 cells/μL) despite stable background with HES therapy.
* Patients received treatment with mepolizumab or placebo, in addition to their existing HES therapy.
* The primary endpoint was the proportion of patients with 1 or more flares at the end of the 32-week study.
* At the end of the treatment period, less patients treated with Nucala (mepolizumab) experienced a flare compared to patients treated placebo (28% vs. 56%, respectively).

- Nucala (mepolizumab) has only been studied as add-on therapy for HES and has not been compared to other alternatives. Therefore, it is unknown if Nucala (mepolizumab) is superior to less costly alternatives.

CHRONIC RHINOSINUTISIS WITH NASAL POLYPS BACKGROUND\textsuperscript{[45-47]}

- Chronic rhinosinusitis (CRS) is a common condition. It is defined as inflammation of at least one paranasal sinus. It is characterized as chronic when symptoms persist for at least 12 weeks. CRS is divided into CRS with nasal polyps (CRSwNP) and CRS without nasal polyps (CRSsNP). Endoscopy or on a sinus computed tomographic (CT) is needed to confirm the diagnosis of nasal polyps.

- Symptoms of nasal polyps include chronic congestion, facial pressure, purulent postnasal drip, throat clearing, coughing, and reduced ability to smell.

- Oral corticosteroids and intranasal corticosteroids (INCS) are the mainstay of therapy. Oral corticosteroids decrease nasal polyp size but are not used long-term.

- INCS decrease polyp size and prevent recurrence in patients who have had polyps removed through surgery. INCS include those products for intranasal use specifically (such as sprays), as well as other steroid solutions (such as budesonide nebs, used intranasally) or surgically implanted steroid-eluding stents.

Xolair (omalizumab) for Nasal Polyps\textsuperscript{[48]}

- The safety and efficacy of Xolair (omalizumab) for nasal polyps was established based on two phase 3 studies: POLYP-1 and POLYP-2.

* Both studies compared Xolair (omalizumab) in combination with mometasone fumarate nasal spray (MFNS) vs. MFNS alone.

* The studies included patients with bilateral polyposis that persisted despite treatment with oral corticosteroids.

* The primary endpoints were change in Nasal Polyp Score (NPS) and nasal congestion score (NCS). Secondary endpoints other measures such as polyp size, disease severity, and symptoms.

* Treatment with Xolair (omalizumab) with MFNS improved nasal polyp scores and improved symptoms compared to MFNS alone. Secondary endpoints also favored the Xolair (omalizumab) group.

- Xolair (omalizumab) is only indicated in patients with elevated IgE levels and is dosed according to IgE levels between 30 and 1600 IU/mL in patients with nasal polyps. There is no established dose or benefit for IgE levels outside of this range.
**Nucala (mepolizumab) for Nasal Polyps**[49]

- The safety and efficacy of Nucala (mepolizumab) for nasal polyps was established in one 52-week phase 3 study.
  - The study compared Nucala (mepolizumab) in combination with MFNS versus MFNS alone.
  - Patients were required to have had at least one surgery for nasal polyps in the past 10 years and must have received background nasal corticosteroids for at least 8 weeks prior to the study.
  - The co-primary endpoints were change in total endoscopic Nasal Polyp Score (NPS) from baseline and change in mean nasal obstruction VAS score during weeks 49-52. Secondary endpoints included other measures such as polyp size, disease severity, and symptoms.
  - Treatment with Nucala (mepolizumab) decreased the size of nasal polyps and improved nasal obstruction through 52 weeks. Treatment with Nucala (mepolizumab) also resulted in a longer time to nasal surgery (nasal polypectomy) compared to standard of care.

**Not Medically Necessary Uses**

- Xolair (omalizumab) reduces seasonal and perennial allergic rhinitis symptoms but has not been shown to have better efficacy than first-line alternatives, such as nasal corticosteroids, antihistamines, or allergen desensitization therapy. [50-52]

**Safety**

- All monoclonal antibodies for asthma have a theoretical risk of opportunistic infections (including parasitic infections) and malignancy. Immunogenicity and development of antidrug antibodies was observed in clinical trials of Nucala (mepolizumab) and Cinqair (reslizumab).[53 54]
- Anaphylaxis is a concern with administration of anti-asthma monoclonal antibodies. Xolair (omalizumab) FDA labeling details assessment of risk for anaphylaxis (see Appendix 5).
- The safety and effectiveness of dose escalation for patients not responding to standard doses have not been established.
Appendices

Appendix 1: Antihistamines

<table>
<thead>
<tr>
<th>H&lt;sub&gt;1&lt;/sub&gt;-Antihistamines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Generation (non-selective, “sedating”)</strong></td>
</tr>
<tr>
<td>- brompheniramine</td>
</tr>
<tr>
<td>- chlorpheniramine (generic Chlor-Trimeton)</td>
</tr>
<tr>
<td>- clemastine (generic Tavist)</td>
</tr>
<tr>
<td>- cyproheptadine (generic Periactin)</td>
</tr>
<tr>
<td>- dexbrompheniramine</td>
</tr>
<tr>
<td>- dexchlorpheniramine</td>
</tr>
<tr>
<td>- diphenhydramine (generic Benadryl)</td>
</tr>
<tr>
<td>- hydroxyzine (generic Vistaril)</td>
</tr>
<tr>
<td><strong>Second Generation (peripherally-selective, “non-sedating”)</strong></td>
</tr>
<tr>
<td>- cetirizine (generic Zyrtec)</td>
</tr>
<tr>
<td>- desloratadine (Clarinex)</td>
</tr>
<tr>
<td>- fexofenadine (generic Allegra)</td>
</tr>
<tr>
<td>- levocetirizine (Xyzal)</td>
</tr>
<tr>
<td>- loratadine (generic Claritin)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H&lt;sub&gt;2&lt;/sub&gt;-Antihistamines</th>
</tr>
</thead>
<tbody>
<tr>
<td>- cimetidine (generic Tagamet)</td>
</tr>
<tr>
<td>- famotidine (generic Pepcid)</td>
</tr>
<tr>
<td>- nizatidine (generic Axid)</td>
</tr>
<tr>
<td>- ranitidine (generic Zantac)</td>
</tr>
</tbody>
</table>
Appendix 2: Low, Medium, and High Daily Doses of Inhaled Corticosteroids (Adapted from GINA 2019 Guidelines) [10]

### Adults and Adolescents (Age 12 years and Older)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Products</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone dipropionate (CFC)</td>
<td>None</td>
<td>200-500</td>
<td>&gt;500-1000</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>Beclomethasone dipropionate (HFA)</td>
<td>QVAR Redihaler</td>
<td>100-200</td>
<td>&gt;200-400</td>
<td>&gt;400</td>
</tr>
<tr>
<td>Budesonide (DPI)</td>
<td>Symbicort, Pulmicort Flexhaler</td>
<td>200-400</td>
<td>&gt;400-800</td>
<td>&gt;800</td>
</tr>
<tr>
<td>Ciclesonide (HFA)</td>
<td>Alvesco</td>
<td>80-160</td>
<td>&gt;160-320</td>
<td>&gt;320</td>
</tr>
<tr>
<td>Fluticasone furoate (DPI)</td>
<td>Breo Ellipta, Arnuity Ellipta, Trelegy Ellipta</td>
<td>100</td>
<td>N/A</td>
<td>200</td>
</tr>
<tr>
<td>Fluticasone propionate (DPI)</td>
<td>Advair Diskus, Flovent Diskus, Wixela Inhuh, AirDuo RespiClick, ArmonAir RespiClick</td>
<td>100-250</td>
<td>&gt;250-500</td>
<td>&gt;500</td>
</tr>
<tr>
<td>Fluticasone propionate (HFA)</td>
<td>Advair HFA, Flovent HFA</td>
<td>100-250</td>
<td>&gt;250-500</td>
<td>&gt;500</td>
</tr>
<tr>
<td>Mometasone furoate</td>
<td>Dulera, Asmanex</td>
<td>110-220</td>
<td>&gt;220-440</td>
<td>&gt;440</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>Azmacort</td>
<td>400-1000</td>
<td>&gt;1000-2000</td>
<td>&gt;2000</td>
</tr>
</tbody>
</table>

Key: DPI: dry power inhaler; HFA: hydrofluoroalkane.

### Children age 6-11 years

<table>
<thead>
<tr>
<th>Drug</th>
<th>Products</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone dipropionate (CFC)</td>
<td>None</td>
<td>100-200</td>
<td>&gt;200-400</td>
<td>&gt;400</td>
</tr>
<tr>
<td>Beclomethasone dipropionate (HFA)</td>
<td>QVAR Redihaler</td>
<td>50-100</td>
<td>&gt;100-200</td>
<td>&gt;200</td>
</tr>
<tr>
<td>Budesonide (DPI)</td>
<td>Symbicort, Pulmicort Flexhaler</td>
<td>100-200</td>
<td>&gt;200-400</td>
<td>&gt;400</td>
</tr>
<tr>
<td>Ciclesonide (HFA)</td>
<td>Alvesco</td>
<td>80</td>
<td>&gt;80-160</td>
<td>&gt;160</td>
</tr>
<tr>
<td>Fluticasone furoate (DPI)</td>
<td>Breo Ellipta, Arnuity Ellipta, Trelegy Ellipta</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fluticasone propionate (DPI)</td>
<td>Advair Diskus, Flovent Diskus, Wixela Inhuh, AirDuo RespiClick, ArmonAir RespiClick</td>
<td>100-200</td>
<td>&gt;200-400</td>
<td>&gt;400</td>
</tr>
<tr>
<td>Fluticasone propionate (HFA)</td>
<td>Advair HFA, Flovent HFA</td>
<td>100-200</td>
<td>&gt;200-500</td>
<td>&gt;500</td>
</tr>
<tr>
<td>Mometasone furoate</td>
<td>Dulera, Asmanex</td>
<td>110</td>
<td>≥220-&lt;440</td>
<td>≥440</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>Azmacort</td>
<td>400-800</td>
<td>&gt;800-1200</td>
<td>&gt;1200</td>
</tr>
</tbody>
</table>

Key: DPI: dry power inhaler; HFA: hydrofluoroalkane.
### Children age 0-5 years

<table>
<thead>
<tr>
<th>Drug</th>
<th>Products</th>
<th>Daily Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone dipropionate (HFA)</td>
<td>QVAR RediHaler</td>
<td>Low 100 (ages ≥5 years)</td>
</tr>
<tr>
<td>Budesonide nebulized</td>
<td>Generic</td>
<td>Low 500 (ages ≥1 years)</td>
</tr>
<tr>
<td>Budesonide pressurized MDI</td>
<td>Pulmicort Flexhaler</td>
<td>Not sufficiently studied in this age group</td>
</tr>
<tr>
<td>Ciclesonide (HFA)</td>
<td>Alvesco</td>
<td>Not sufficiently studied in this age group</td>
</tr>
<tr>
<td>Fluticasone propionate (HFA)</td>
<td>Flovent HFA</td>
<td>Low 50 (ages ≥4 years)</td>
</tr>
<tr>
<td>Mometasone furoate</td>
<td>Asmanex</td>
<td>Low 110 (ages ≥4 years)</td>
</tr>
<tr>
<td>Triamcinolone acetonide</td>
<td>Azmacort</td>
<td>Not sufficiently studied in this age group</td>
</tr>
</tbody>
</table>

Key: DPI: dry power inhaler; HFA: hydrofluoroalkane.

### Appendix 3: Inhaled Corticosteroid/Long-acting Beta-agonist (ICS/LABA) Combinations

<table>
<thead>
<tr>
<th>Product</th>
<th>Dosing</th>
<th>Max puff/day</th>
<th>High Dose?</th>
<th>Available strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluticasone propionate / salmeterol DPI</td>
<td>Twice daily</td>
<td>2 (1,000 mcg)</td>
<td>Yes (&gt;500)</td>
<td>100/50, 250/50, 500/50</td>
</tr>
<tr>
<td>(Advair Diskus)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone propionate/ salmeterol MDI</td>
<td>Twice daily</td>
<td>4 (920 mcg)</td>
<td>Yes (&gt;440)</td>
<td>45/21, 115/21, 230/21</td>
</tr>
<tr>
<td>(Advair HFA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budesonide + formoterol MDI (Symbicort)</td>
<td>Twice daily</td>
<td>4 (640 mcg)</td>
<td>No</td>
<td>80/4.5, 160/4.5</td>
</tr>
<tr>
<td>Fluticasone propionate / salmeterol DPI</td>
<td>Twice daily</td>
<td>2 (464 mcg)</td>
<td>No</td>
<td>55/14, 113/14, 232/14</td>
</tr>
<tr>
<td>(AirDuo RespiClick)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mometasone/ formoterol MDI (Dulera)</td>
<td>Twice daily</td>
<td>4 (800 mcg)</td>
<td>Yes (&gt;400)</td>
<td>100/5, 200/5</td>
</tr>
<tr>
<td>Fluticasone furoate/vilanterol DPI (Breo</td>
<td>Once daily</td>
<td>1 (200 mcg)</td>
<td>Yes (&gt;200)</td>
<td>100/25, 200/25</td>
</tr>
<tr>
<td>Ellipta)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a* High dose budesonide is >1,200 mcg/day. Maximum daily dose of budesonide from Symbicort (budesonide/formoterol) is 640 mcg/day, a medium dose of ICS.

*b* High dose fluticasone propionate DPI is >500 mcg/day. Maximum daily dose of fluticasone propionate from AirDuo RespiClick (fluticasone propionate/salmeterol DPI) is 464 mcg/day, a medium dose of ICS.
### Appendix 4. Monoclonal Antibodies and Targeted Immunomodulators for Asthma and other Autoimmune (Inflammatory) conditions

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasenra (benralizumab)</td>
<td></td>
</tr>
<tr>
<td>Dupixent (dupilumab)</td>
<td>[refer to Dupixent, dupilumab, Medication Policy Manual, Policy No. dru493]</td>
</tr>
<tr>
<td>Nucala (mepolizumab)</td>
<td></td>
</tr>
<tr>
<td>Cinqair (reslizumab)</td>
<td></td>
</tr>
<tr>
<td>Xolair (omalizumab)</td>
<td></td>
</tr>
<tr>
<td>Tezspire (tezepelumab)</td>
<td></td>
</tr>
</tbody>
</table>

Targeted immunomodulators Antibodies for CID [refer to Drugs for chronic inflammatory diseases, Medication Policy Manual, Policy No. dru444]

### Appendix 5. Monoclonal antibodies for asthma and other immune conditions approved for self-administration – Examples of Medical Rationale for Contraindications to Self-Injection

**For all self-administered options**

The healthcare provider determines self-injection is not appropriate, as documented by a medically justifiable rationale, such as:
- Patient or patient’s caregiver is not able to self-administer the prescribed monoclonal antibody as a PFS or autoinjector (Fasenra, Nucala, or Xolair) due to significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as severe needle phobia, documented in the clinical records.
- Prior severe infusion reactions
- Medically unstable asthma, such as concurrent treatment with medications that require a higher level of monitoring (such as oxygen) or acute treatment of asthma despite maximal medical management.

**Product-specific contraindications**

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasenra (benralizumab)[55]</td>
<td>None</td>
</tr>
<tr>
<td>Nucala (mepolizumab)[53]</td>
<td>Patient is less than 11 years of age (the 40 mg dose is not currently available as a self-administered formulation: PFS or autoinjector)</td>
</tr>
</tbody>
</table>
| Xolair (omalizumab)[45] | Patient is higher risk of anaphylaxis (has known risk factors)  
- Prior history of anaphylaxis, including to Xolair (omalizumab) or other agents, such as foods, drugs, biologics, etc.  
- History of hypersensitivity reactions to Xolair (omalizumab).  
- Patient or caregiver is NOT able to recognize symptoms of anaphylaxis and treat anaphylaxis appropriately. |

PFS = pre-filled syringe
Cross References

<table>
<thead>
<tr>
<th>Cross Reference</th>
<th>Manual/Policy</th>
<th>Section/Category</th>
</tr>
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<tbody>
<tr>
<td>Allergy Testing lab01, TRG Medical Policy Manual, Laboratory</td>
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<td></td>
</tr>
<tr>
<td>Implantable Sinus Devices for Postoperative Use Following Endoscopic Sinus Surgery and for Recurrent Sinonasal Polyposis SUR198, TRG Medical Policy Manual, Surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Preferred Inhaled Corticosteroid-Containing Medications, Medication Policy Manual, Policy No. dru380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dupixent, dupilumab, Medication Policy Manual, Policy No. dru493</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drugs for chronic inflammatory diseases, Medication Policy Manual, Policy No. dru444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site of Care Review, Medication Policy Manual, Policy No. dru408</td>
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</tbody>
</table>

Codes

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<thead>
<tr>
<th>Code</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J2182</td>
<td>Injection, mepolizumab (Nucala), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2357</td>
<td>Injection, omalizumab (Xolair), 5 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2786</td>
<td>Injection, reslizumab (Cinqair), 1 mg</td>
</tr>
</tbody>
</table>

References


35. Dupixent [prescribing information]. Tarrytown, NY: Regeneron; December 2021


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 6/17/2022     | - Added coverage criteria for the newly FDA-approved drug Tezspire (tezepelumab). Limits coverage to patients with severe asthma when prescribed by a specialist, adherent use of ICS/ LABA has been ineffective, and blood eosinophils are less than 150 cells/ L. Additionally the asthma must be non-allergic, and the patient is not oral corticosteroid dependent. Step therapy with at least one monoclonal antibody for severe asthma is required.  
- Updated nasal polyp criteria for initial authorization to be at 24 weeks per guidelines, and continued reauthorization may be annually thereafter. |
| 3/18/2022     | - Updated nasal polyp criteria to show that both Xolair (omalizumab) and Nucala (mepolizumab) require combination use of intranasal corticosteroids. IgE levels are only required for use of Xolair (omalizumab) in nasal polyps. |
| 10/15/2021    | - Added Site of Care (SOC) requirements for provider-administered doses.  
- Added coverage criteria for Nucala (mepolizumab) for nasal polyps and clarified severity criteria.  
- Updated benefit and administration language section. |
| 4/21/2021     | - Added coverage criteria for use of Nucala (mepolizumab) in hypereosinophilic syndrome (HES), a newly FDA approved indication.  
- Added coverage criteria for use of Xolair (omalizumab) in nasal polyps, a newly FDA approved indication.  
- Revised asthma criteria:  
  * Changed requirement for previous courses of oral corticosteroids in past 12 months from two to one.  
  * Simplified eosinophil count criteria for Fasenra (benralizumab), Nucala (mepolizumab), and Cinqair (reslizumab).  
  * Removed requirement that smoking must have been discontinued.  
- Added Continuation of Therapy (COT) criteria  
- Updated “Investigational Uses”  
- Added Xolair pre-filled syringe as a self-administered treatment option. |
<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 10/23/2019    | - Added Fasenra (benralizumab) and Nucala (mepolizumab) single-dose pre-filled autoinjector for self-administration to the policy. All other anti-asthma antibodies in the policy remain provider-administered only.  
Effective November 15, 2019:  
- Updated coverage criteria for asthma:  
  * Clarified that maximally tolerated inhaled corticosteroid and long-acting inhaled beta-2 agonist therapy must have been tried.  
  * Removed requirement for use of oral corticosteroids if exacerbations are present.  
  * Revised definition of poor asthma control to include clarify requirement for two additional oral corticosteroid bursts or emergency department visits or hospitalizations. |
| 4/25/2019     | Updated and fixed incorrect references. No changes to policy criteria with this update. |
| 1/31/2019     | Clarified intent of trigger criteria. |
| 11/16/2018    | Clarified intent of trigger, step therapy, quantity limit and reauthorization criteria. |
| 03/16/2018    | New policy:  
- The Xolair, Nucala, and Cinqair policies were combined.  
- Coverage criteria added for asthma for newly-approved Fasenra.  
- Coverage criteria added for EGPA for Nucala. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru539

Topic: Hemlibra, emicizumab-kxwh

Date of Origin: May 1, 2018

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Hemlibra (emicizumab-kxwh) is a monoclonal antibody used for patients with hemophilia A with or without factor VIII (FVIII) inhibitors. It is used for routine prophylaxis to prevent or decrease the frequency of bleeding episodes.
Policy/Criteria
Most contracts require pre-authorization approval of Hemlibra (emicizumab-kxwh) prior to coverage.

I. Continuation of therapy (COT): Hemlibra (emicizumab-kxwh) may be considered medically necessary for COT when criterion A or B below is met.
   A. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   OR
   B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New Starts (treatment-naïve): Hemlibra (emicizumab-kxwh) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming criterion A or B below are met.
   A. Hemophilia A with high titer FVIII inhibitors, when criteria 1 and 2 below are met:
      1. A diagnosis of hemophilia A (congenital FVIII deficiency), established by or in consultation with a hematologist.
      AND
      2. Documentation of a history of high anti-FVIII titer (≥5 Bethesda units).
   OR
   B. Hemophilia A without FVIII inhibitors (also referred to “with low or no titer FVIII inhibitors”), when criteria 1, 2, and 3 below are met:
      1. A diagnosis of hemophilia A (congenital FVIII deficiency), established by or in consultation with a hematologist.
      AND
      2. Documentation that the patient is without FVIII inhibitors, confirmed by testing and as defined by one of the following (criterion a or b):
         a. No FVIII inhibitors (<0.6 Bethesda units).
         OR
         b. Low anti-FVIII titer (<5 Bethesda units).
      AND
3. ONE of the following is met:
   a. There is a documented objective clinical reason that all available
      FVIII blood factor products are not appropriate (as listed in
      Appendix 1).
      OR
   b. Prophylactically administered factor VIII product has been
      ineffective, defined as the patient continuing to have documented
      (e.g., bleed diary or detailed provider notes) clinically significant
      bleeding events (such as target joint bleeds or other end-organ
      damage) despite adherent use doses of factor VIII products (dose
      and dose frequency, as listed in Appendices 2 and 3).

   PLEASE NOTE: On-demand (“PRN”) use of a factor VIII product
   will not meet the intent of this efficacy criteria.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Hemlibra (emicizumab-kxwh) coverable
   under the medical benefit or pharmacy benefit. Determination of coverage under
   the pharmacy or medical benefit is based on group-specific benefits, as defined in
   the group and member contract (as determined by the member contract with the
   health plan, regardless of self- or provider-administration).

B. When pre-authorization is approved, Hemlibra (emicizumab-kxwh) will be
   authorized as follows:
   1. In quantities up to 3 mg/kg per week for the first 4 weeks.
   2. After the initial first four doses, quantities up to 1.5 mg/kg per week
      (based on dosing weekly 1.5 mg/kg every week, 3 mg/kg every two weeks,
      or 6 mg/kg every 4 weeks) may be authorized.
   3. Doses authorized will be based on the closest available vial size.
   4. Doses greater than listed above are considered investigational.

C. Authorization shall be reviewed as follows:
   1. Hemlibra (emicizumab-kxwh) will be authorized for up to one year.
   2. Authorization shall be reviewed at least annually to confirm that the
      medication continues to be effective.

IV. Hemlibra (emicizumab-kxwh) is considered investigational when used for all other
    conditions.

V. Use of Hemlibra (emicizumab-kxwh) in combination with prophylactic extended-half life
    (EHL) FVIII products (such as those Appendix 3) is considered “not medically
    necessary.”
Position Statement

Summary

- Hemlibra (emicizumab-kxwh) is a humanized monoclonal modified antibody with a bispecific antibody structure binding factor IXa and factor X. It is indicated for routine prophylaxis to prevent or reduce the frequency of bleeding episodes in adult and pediatric patients with hemophilia A (congenital factor VIII deficiency) with or without FVIII inhibitors (also referred to “low or undetectable titer FVIII inhibitors”). [1]

- The intent of the policy is to allow for coverage for Hemlibra (emicizumab-kxwh) for patients with hemophilia A for up to the FDA-approved dose, in the following patients:
  * Patients with high titer FVIII inhibitors (such that FVIII blood products would not be effective) or
  * When FVIII blood products (“blood factor concentrates”) are used but ineffective, as detailed in the coverage criteria.

- In addition, the intent of the policy is to ensure ongoing use of Hemlibra (emicizumab-kxwh) is effective for reduction of bleeding and used in doses up to the coverable amount.

- Hemlibra (emicizumab-kxwh) was studied in four phase 3 trials in adult and pediatric patients with hemophilia A with or without FVIII inhibitors. It was shown to be safe and effective for reduction of bleeding in both types of patients.[1-4]

- Therapy should be individualized based on age, bleeding phenotype, weight, inhibitor status, history of bleeding episodes, and availability of factor concentrates. Patients with a suboptimal response to factor concentrates should be assessed for inhibitors.

- The primary goal of factor replacement therapy (with blood products or emicizumab) is to prevent bleeding and treat bleeding (with blood products only). A reduction in bleeding events and subsequent sequelae demonstrate the efficacy of treatment.

- Patients who continue to have spontaneous clinically significant bleeds (such target joint bleeds or other end-organ damage) or cannot maintain optimal factor levels despite adherence to adequate (FDA-recommended) doses of Standard Half-Life (SHL) factor VIII products may see benefit from EHL FVIII products or Hemlibra (emicizumab-kxwh).

- Hemophilia A with FVIII inhibitors:
  * There are a limited number of treatment options for hemophilia A with FVIII inhibitors.
  * The Medical and Scientific Advisory Council (MASAC) states that the choice of product depends on multiple factors, including titer of inhibitor, bleed history, and previous response to products.[5]

- Hemophilia A without FVIII inhibitors:
  * However, there are numerous FVIII concentrate products (blood factor repletion with FVIII replacement products) available for management of hemophilia A patients without FVIII inhibitors (See Appendices 2 and 3).
  * FVIII concentrate products are effective for achieving hemostasis in patients without FVIII inhibitors, based on years of clinical experience.
There is no head-to-head evidence that emicizumab prophylaxis is safer or more effective than blood product prophylactic regimens (SHL or EHL FVIII) in terms of annualized bleed rates (ABR). However, emicizumab and EHL FVIII product prophylactic regimens are more costly than SHL FVIII product prophylactic regimens. Therefore, emicizumab is coverable only when FVIII products are ineffective, or all are medically contraindicated.

Recommendations by the Medical and Scientific Advisory Council (MASAC) for the treatment of hemophilia without inhibitors recommends that providers discuss the risks and benefits of emicizumab compared to their existing therapy with patients, but MASAC does not endorse one treatment over another. There are numerous treatment options in this population and no distinction is made between different factor products.[6]

Hemlibra (emicizumab-kxwh) may be covered for the dosing shown to be safe and effective in trials (up to 1.5 mg/kg every week after titration, or consolidated dosing every two or four weeks). The safety and effectiveness of higher doses have not been evaluated.[1]

The safety and effectiveness of Hemlibra (emicizumab-kxwh) in conditions other than hemophilia A (with or without inhibitors) have not been established.

Hemlibra (emicizumab-kxwh) is used for “baseline” prophylaxis of bleeding and may be used in combination with on-demand standard-half life (SHL) FVIII products (as listed in Appendix 2) in patients without high-titer FVIII inhibitors. However, the use of Hemlibra (emicizumab-kxwh) in combination with prophylactic extended-half life (EHL) FVIII product (as listed in Appendix 3) is considered “not medically necessary”. There is no evidence to support that the use EHL FVIII products are safer or more effective than SHL FVIII products when used in combination with Hemlibra (emicizumab-kxwh).

Clinical Efficacy

Hemophilia A with FVIII Inhibitors:

Approval of Hemlibra (emicizumab-kxwh) in hemophilia A with FVIII inhibitors was based on two phase 3 studies. The trials were small and of fair quality overall.[1,2]

In a randomized, open-label trial in patients with hemophilia A with high-titer FVIII inhibitors (≥5 Bethesda units), patients were randomized to receive emicizumab prophylaxis or no treatment. Patients could receive episodic treatment with a bypassing agent for breakthrough bleeding. The annualized bleed rate (ABR) was significantly lower in patients who received treatment with Hemlibra (emicizumab-kxwh) compared to patients who received no treatment (2.9 vs. 23.3, respectively).

A phase 3, randomized, single-arm, open-label trial evaluated Hemlibra (emicizumab-kxwh) in pediatric patients 2 to 12 years of age with hemophilia A and FVIII inhibitors. Treatment with Hemlibra (emicizumab-kxwh) demonstrated an ABR of 0.2.

Hemlibra (emicizumab-kxwh) has not been directly compared to bypassing agents in any disease setting.
**Hemophilia A WITHOUT FVIII Inhibitors:**

Approval of Hemlibra (emicizumab-kxwh) in hemophilia A **without** FVIII inhibitors was based on two phase 3 studies. The trials were small and of low quality overall. [3,4]

- In HAVEN-3, emicizumab prophylactic therapy was more effective than on-demand therapy in terms of ABR. Emicizumab use resulted in an ABR (treated bleeds) of 1.5 and 1.3, compared for 38.2 for emicizumab weekly, emicizumab every 2 weeks, and on demand treatment with factor VIII product respectively. Patients could receive episodic treatment with a factor VIII product for breakthrough bleeding.

- In HAVEN-4, emicizumab dosed every 4 weeks resulted in a decrease in ABR (treated bleeds) to 2.4. The ABR prior to treatment with emicizumab was not reported. However, 31.7% of patients in HAVEN-4 had ≥9 bleeds in the 24 weeks prior to the trial. Patients could receive episodic treatment with a factor VIII product or bypassing agent for breakthrough bleeding.

- Hemlibra (emicizumab-kxwh) has not been directly compared factor VIII replacement products in any disease setting.

**Clinical Guidelines/Standard of Care Treatment**

- Factor concentrate products (blood factor replacement products) are effective for the prevention and control of bleeding versus no treatment based on years of significant clinical experience, systematic reviews, and are endorsed by clinical practice guidelines. There is insufficient evidence that any factor concentrate or bypassing agent is superior to another due to a lack of comparative trial data.

- There are numerous SHL and EHL FVIII replacement products available for hemophilia A in patients without inhibitors. Whereas in patients with inhibitors, there are only a limited number of therapeutic options, including emicizumab and FVIII inhibitor bypassing agents, such as rFVIIa (NovoSeven and SevenFact) and activated prothrombin complex concentrate (aPCC, FEIBA). [6]

- Prophylaxis is recommended as the optimal treatment modality for individuals with severe hemophilia by the National Hemophilia Foundation. The concept was conceived from the observation that moderate hemophiliacs (clotting factor level >1 IU/dL) seldom experience spontaneous bleeding and have much better preservation of joint function.[7]

- For hemophilia A patients with inhibitors on emicizumab, MASAC recommends appropriate education on management of breakthrough bleeds, caution with bypassing agent dose, and careful laboratory monitoring should occur. In addition, due to the emergence of anti-drug antibodies, careful monitoring of the continued efficacy of emicizumab is recommended.

**Safety**[1]

- Hemlibra (emicizumab-kxwh) has a Boxed Warning for thrombotic microangiopathy and thromboembolism when used concurrently with aPCC at >100 U/kg/day. Additional monitoring is recommended with concomitant use of the two agents.

- Hemlibra (emicizumab-kxwh) also has a warning and precaution for laboratory coagulation test interference. Intrinsic pathway clotting-laboratory tests (e.g., activated clotting time [ACT], activated partial thromboplastin time [aPTT]) should not be used to monitor Hemlibra (emicizumab-kxwh) activity.

*Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.*
- The most common adverse events reported include injection site reactions, headache, and arthralgia.
- There is no evidence to allow conclusion that Hemlibra (emicizumab-kxwh) is safer than FVIII products or bypassing agents.
- The recommended dose of Hemlibra (emicizumab-kxwh) is 3 mg/kg by subcutaneous injection once weekly for the first 4 weeks, followed by 1.5 mg/kg once weekly, 3mg/kg every 2 weeks, or 6mg/kg every 4 weeks. The safety and effectiveness of higher doses have not been established.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J7170</td>
<td>Injection, emicizumab-kxwh (Hemlibra), 0.5 mg</td>
</tr>
</tbody>
</table>

**Appendix 1: Clinical Reasons Standard Half-Life (SHL) Factor Products Are Not Appropriate**

- Pharmacokinetic (PK) studies demonstrate an inability to maintain factor levels within the desired range with all recombinant SHL factor products, dosed at FDA-recommended doses
- History of bleeds despite adherence to FDA recommended doses of all recombinant SHL factor products
- Documented medical contraindications to all recombinant SHL factor products
- Inadequate venous access for prophylactic IV therapy due to comorbidities or age.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
# Appendix 2: Standard Half-life (SHL) Factor VIII Products for Hemophilia A

<table>
<thead>
<tr>
<th>Medication</th>
<th>Recombinant or Plasma-Derived</th>
<th>FDA-recommended Prophylactic Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advate[^8]</td>
<td>Recombinant</td>
<td>Up to 40 IU/kg every other day</td>
</tr>
</tbody>
</table>
| Kovaltry[^9]    | Recombinant                  | >12 years old: Up to 40 IU/kg two to three times per week  
                |                              | <12 years old: Up to 50 IU/kg every other day           |
| NovoEight[^10]  | Recombinant                  | >12 years old: Up to 50 IU/kg every other day  
                |                              | <12 years old: Up to 60 IU/kg every other day           |
| Nuwiq[^11]      | Recombinant                  | >12 years old: Up to 40 IU/kg every other day  
                |                              | <12 years old: Up to 50 IU/kg every other day           |
| Kogenate[^13]   | Recombinant                  | Adults: Up to 25 IU/kg three times per week  
                |                              | Children: Up to 25 IU/kg every other day               |
| Helixate[^15]   | Recombinant                  | Adults: Up to 25 IU/kg three times per week  
                |                              | Children: Up to 25 IU/kg every other day               |
| Hemofil M[^16]  | Plasma                       | See FDA label for specifics of maximizing dosing. |
| Monoclate-P[^17]| Plasma                      | See FDA label for specifics of maximizing dosing. |
| Alphanate[^18]  | Plasma                       | See FDA label for specifics of maximizing dosing. |
## Appendix 3: Extended Half-life (EHL) Factor VIII Products for Hemophilia A

<table>
<thead>
<tr>
<th>Medication</th>
<th>Recombinant or Plasma-Derived</th>
<th>FDA- recommended Prophylactic Dosing</th>
</tr>
</thead>
</table>
| Adynovate[^21] | Recombinant                    | >12 years old: Up to 50 IU/kg two times per week  
<12 years old: Initially up to 55 IU/kg two times per week with a maximum of 70 IU/kg |
| Eloctate[^22]  | Recombinant                    | >6 years old: Up to 65 IU/kg every 3 to 5 days.  
<6 years old: Up to 65 IU/kg every 3 to 5 days. More frequent or higher doses (up to 80 IU/kg) may be required |
| Afstyla[^23]   | Recombinant                    | >12 years old: Up to 50 IU/kg 2 to 3 times per week  
<12 years old: Up to 50 IU/kg 2 to 3 times per week. More frequent or higher doses may be required in children <12 years old to account for higher clearance in this population |
<12 years old: Not approved for use in this age group |
| Esperoct[^25]  | Recombinant                    | >12 years old: Up to 50 IU/kg every 4 days  
<12 years old: Up to 65 IU/kg twice weekly |

### Cross References

References
5. MASAC Safety Information Update on Emicizumab (Hemlibra). [cited; Available from: https://www.hemophilia.org/Newsroom/Medical-News/MASAC-Safety-Information-Update-on-Emicizumab-HEMLIBRA
10. NovoEight [prescribing information]. Plainsboro, NJ: Novo Nordisk; May 2018
14. Recombinate [prescribing information]. Westlake Village, CA: Shire; March 217
15. Helixate [prescribing information]. Kankakee, IL: CSL Behring; May 2016
17. Monoclave-P [prescribing information]. Kankakee, IL: CSL Behring; February 2014
22. Eloctate [Prescribing Information]. Waltham, MA: Bioverativ Therapeutics; December 2017
23. Afstyla [Prescribing Information]. Kankakee, IL: CSL Behring; September 2017
24. Jivi [Prescribing Information]. Whippany, NJ: Bayer; August 2018
### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
</tr>
</tbody>
</table>
| 1/20/2021     | • Updated COT language, no change to intent.  
• Made operational improvements to step therapy requirement language.  
• Extended auth period from 24 weeks to one year.  
• Simplified reauthorization requirements. |
| 7/22/2020     | Added continuation of therapy (COT) criteria. No other changes with this annual update. |
| 10/23/2019    | • Clarification of coverage criteria, for simplification and consistency of administration, including addition of a definition of “ineffectiveness to factor VIII” (no change to intent of coverage criteria).  
• Updated administration requirements to reflect coverage on either the pharmacy or medical benefit as dictated by group and member specific contract decisions.  
• Clarification of reauthorization criteria, to include documentation of efficacy and compliance with dosing regimen.  
• Clarification to include use of Hemlibra (emicizumab-kxwh) in combination with prophylactic doses of EHL FVIII products is “not medically necessary.” |
| 4/25/2019     | No criteria changes with this annual update. |
| 11/16/2018    | Added coverage criteria for patients with hemophilia A without inhibitors, when prophylactic FVIII concentrate (blood factor replacement) therapy is ineffective. |
| 03/19/2018    | New policy (effective 5/1/18). |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru540

**Topic:** CGRP Monoclonal Antibodies

- Emgality, galcanezumab
- Ajovy, fremanezumab
- Aimovig, erenumab
- Vyepti, eptinezumab

**Date of Origin:** May 1, 2018

**Committee Approval Date:** October 15, 2021

**Effective Date:** January 1, 2022

**Next Review Date:** March 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

CGRP monoclonal antibodies are a type of medication used to prevent migraine and cluster headaches. They work by blocking calcitonin gene-related peptide (CGRP) or its receptor.
Policy / Criteria

Most contracts require pre-authorization approval of CGRP monoclonal antibodies prior to coverage.

I. **Continuation of therapy (COT):** CGRP monoclonal antibodies may be considered medically necessary for COT when criteria A, B, or C, AND D below are met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria below must be met for coverage.

   **OR**

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:

   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   **AND**

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   **OR**

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **AND**

   D. **For eptinezumab (Vyepti) only:** Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** CGRP monoclonal antibodies may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A or B, AND C are met.

   A. **Migraine headache prophylaxis** when criteria 1 through 4 below are met

   1. A neurologist or headache specialist has thoroughly evaluated the member and has established and documented a primary diagnosis of episodic or chronic migraine headaches.

   **AND**

   2. Documentation of baseline headache days per month, including number of migraines, based on a headache diary or chart notes documenting migraine frequency, severity, and characteristics.

   **AND**
3. An adequate trial of at least ONE prophylactic therapy, as specified in criteria a through c below was ineffective, not tolerated, or contraindicated:
   a. Topiramate OR divalproex sodium (Depakote).
   OR
   b. A beta blocker (such as propranolol, metoprolol, or atenolol).
   OR
   c. Venlafaxine OR a tricyclic antidepressant (such as amitriptyline or nortriptyline).

AND

4. For eptinezumab (Vyepti) only, treatment with all of the following have been ineffective, not tolerated, or are contraindicated:
   a. Erenumab (Aimovig).
   AND
   b. Fremanezumab (Ajovy)
   AND
   c. Galcanezumab (Emgality).

OR

B. Episodic cluster headaches prophylaxis [galcanezumab (Emgality) only], when criteria 1 through 5 below are met:

1. The patient has a diagnosis of episodic cluster headache as confirmed by all of the following (criteria a through c):
   a. The patient has had at least 5 cluster headache attacks.
   AND
   b. The patient has at least two cluster periods lasting 7 to 365 days.
   AND
   c. The patient’s cluster periods are separated by a pain-free remission period of at least 3 months.

AND

2. The prescriber is a neurologist or headache specialist and has thoroughly evaluated the member and has established and documented a primary diagnosis of episodic cluster headaches.

AND

3. There is documentation (i.e., headache diary or chart notes) of baseline cluster headache attacks per week and cluster headache frequency, severity, and characteristics.
AND

4. An evaluation has been performed to assess for rebound headaches caused by medication use [medication overuse headache (MOH)] and the patient does not suffer from rebound or MOH. Medications that may be associated with rebound headache include, but are not limited to, more than 12 doses per month of narcotics, triptans, caffeine, and NSAIDs.

AND

5. An adequate trial of at least ONE prophylactic therapy, as specified in criteria a through d below, was ineffective, not tolerated, or contraindicated:
   a. Verapamil.
   OR
   b. Melatonin.
   OR
   c. Corticosteroids [such as prednisone, methylprednisolone (Medrol Dose Pak, etc.)].
   OR
   d. Lithium.

AND

C. **For eptinezumab (Vyepti) only:** Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers erenumab (Aimovig) and galcanezumab (Emgality) coverable only under the pharmacy benefit (as a self-administered medication).

B. Regence Pharmacy Services considers eptinezumab (Vyepti) coverable only under the medical benefit (as a provider-administered medication).

C. Regence Pharmacy Services considers fremanezumab (Ajovy) coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication).

D. When pre-authorization is approved, monoclonal antibodies for migraine prevention may be authorized as follows:

1. **Initial authorization:**
   a. **Erenumab (Aimovig):** Up to 140 mg once monthly for six months.
   b. **Fremanezumab (Ajovy):** Up to 225 mg once monthly OR up to 675 mg every three months for six months.
   c. **Eptinezumab (Vyepti):** Up to 100 mg once every 3 months for six months.
   d. **Galcanezumab (Emgality):**
2. **Continued authorization**: Continued authorization **shall** be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement. This includes an improvement in functional impairment, and at least a 50% reduction in migraine frequency or cluster headache attacks, or at least a 50% reduction in severity relative to baseline migraine frequency and severity, as measured by a reduction in the need for acute therapies, additional acute care, missed school/work, or ability to perform activities of daily living (ADLs).

   a. **Erenumab (Aimovig)**: Up to 140 mg once monthly for twelve months.

   b. **Fremanezumab (Ajovy)**: Up to 225 mg every month for twelve months (12 doses per 12 months) OR up to 675 mg every three month for twelve months (4 doses per 12 months).

   c. **Eptinezumab (Vyepti)**: Up to 100 mg once every 3 months for twelve months. Up to 300 mg every 3 months may be authorized in patients who have had an inadequate response to the 100 mg dose after at least six months.

   d. **Galcanezumab (Emgality)**:
      
      i. **Migraine**: Up to 120 mg once monthly for twelve months.

      ii. **Cluster headache**: Up to 300 mg once monthly for twelve months.

IV. **CGRP monoclonal antibodies are considered investigational for all other indications not specified in the coverage criteria above, including chronic daily headache (CDH), tension headache, cervicogenic headache, and menstrual migraines.**

**Position Statement**

- Medications in this policy are monoclonal antibodies which target calcitonin gene-related peptide (CGRP). They are approved for the prevention of chronic and episodic migraines. Galcanezumab (Emgality) is also approved for episodic cluster headaches.

- The intent of the policy is to allow coverage of CGRP monoclonal antibodies for patients with episodic or chronic migraine headaches or cluster headaches who have failed other standard of care preventative (“prophylactic”) measures. Coverage of certain CGRP products is restricted to use only when treatment with preferred CGRP products have been ineffective, not tolerated, or contraindicated.
- Frequent migraine headaches may be classified as either episodic or chronic. Episodic migraine is defined as having migraine headaches for up to 14 days per month. Chronic migraine is defined as having 15 or more headache days per month for at least 3 months. [1-3]

- The starting dose of eptinezumab (Vyepti) is 100 mg intravenously (IV) every 3 months but some patients may benefit from 300 mg every 3 months. In clinical trials, patients received placebo, 100 mg, or 300 mg every three months. Both doses were superior to placebo, but the 100 mg and 300 mg doses were not compared to each other. While the 300 mg dose did appear reduce migraine days slightly more than the 100 mg dose, the differences were small and may not have been clinically meaningful. Therefore, due to similar efficacy between both doses through at least 6 months, use of the higher dose 300 mg is limited to patients who have had an inadequate response to at least two doses of eptinezumab (Vyepti) 100 mg. Additional studies are needed to determine when dose escalation is necessary and to identify if certain patients would benefit from higher doses initially. [6]

- There is no evidence directly comparing monoclonal CGRP inhibitors to oral preventative medications for migraine or cluster headaches.

- Because no CGRP monoclonal antibody migraine medication has been shown to be more effective than another, the preferred products offer members the best value. The long-term safety and durability of effect for any of these medications has not been established in the medical literature.

Use of Oral Prophylactic Therapies

- Migraines: [1 2]
  
  * Guidelines from the American Academy of Neurology (AAN) and American Headache Society (AHS) recommend select antiepileptic medications (AEDs; divalproex or topiramate) and beta-blockers (propranolol, timolol, or metoprolol) as options that should be offered to patients requiring migraine prophylaxis, with the highest level of evidence to support their use. These guidelines do not currently address the use of CGRP inhibitors.

  * Other medications that are “probably effective and should be considered” include tricyclic antidepressant (TCA) amitriptyline, selective serotonin-norepinephrine reuptake inhibitor (SNRI) venlafaxine, atenolol, and nadolol.

  * Use of carbamazepine and a variety of select antihypertensives (candesartan, lisinopril, clonidine, guanfacine, or pindolol) are possibly effective; however, the many other prophylactic alternatives with higher-quality evidence should be used first.

  * Many other medications, including but not limited to, selective serotonin receptor inhibitors (SSRIs; e.g., fluoxetine, fluvoxamine), other SNRIs (e.g. duloxetine), other AEDs (gabapentin, lamotrigine, and oxcarbazepine), calcium channel blockers (CCBs; e.g. nicardipine, nifedipine, verapamil), and clonazepam, have been studied in migraine prophylaxis, but evidence supporting their efficacy is conflicting, inadequate, or negative (i.e., support the therapy is ineffective).
- Episodic cluster headaches\[7\]
  * The AHS guidelines recognize suboccipital steroid injections, lithium, verapamil, warfarin, and melatonin as possible treatment options for the prevention of episodic cluster headaches.

**Summary**

**CLINICAL EFFICACY - MIGRAINES**

- Erenumab is approved for the prevention of episodic and chronic migraine headaches based on phase 2 and 3 trials at doses of 70 or 140 mg administered as a subcutaneous injection every 4 weeks.\[8-12\] While erenumab demonstrated a statistically significant reduction in migraine days per month compared to placebo, the magnitude of difference is small and limited to 12 to 24 weeks of efficacy data.

- Fremanezumab is approved for the prevention of episodic and chronic migraine headaches in phase 3 trials at doses of 225 mg administered as a subcutaneous injection every four weeks or 675 mg quarterly (every 12 weeks). Fremanezumab demonstrated a statistically significant, yet marginal reduction in migraine days per month compared to placebo in 12 weeks trials.\[13 14\]

- Galcanezumab has been studied for the prevention of episodic migraine headaches in a phase 3 trials at doses of 120 and 240 mg administered as a subcutaneous injection every 4 weeks. Galcanezumab demonstrated a statistically significant, yet marginal reduction in migraine days per month compared to placebo in 6-month trials.\[15 16\]

- \[17\] Eptinezumab is approved for the preventive treatment of migraine in adults based on two phase 3 trials at doses of 100 mg and 300 mg administered intravenously every 3 months. Eptinezumab demonstrated statistically significant, yet marginal reductions in monthly migraine days compared to placebo in patients with episodic and chronic migraine.\[4 18\]

- The starting does of eptinezumab (Vyepti) is 100 mg intravenously (IV) every 3 months but some patients may benefit from 300 mg every 3 months. In clinical trials, patients received placebo, 100 mg, or 300 mg every three months. Both doses were superior to placebo, but the 100 mg and 300 mg doses were not compared statistically.
  * In a trial in episodic migraine the 100 mg and 300 mg doses reduced mean migraine days by 3.9 and 4.3 days at 3 months, respectively.\[4\]
  * In the CM study, 100 mg and 300 mg doses reduced mean migraine days by 7.7 and 8.2 at 3 months, respectively.\[5\]
  * In both trials, efficacy was also similar for months 3 to 6.

- While the 300 mg dose did appear reduce migraine days slightly more than the 100 mg dose, the differences were small and may not have been clinically meaningful. Therefore, due to similar efficacy between both doses through at least 6 months, use of the higher dose 300 mg is limited to patients who have had an inadequate response to at least two doses of eptinezumab (Vyepti) 100 mg. Additional studies are needed to determine when dose escalation is necessary and to identify if certain patients would benefit from higher doses initially.\[6\]
**CLINICAL EFFICACY – CLUSTER HEADACHES**

- Galcanezumab brings uncertain value to the treatment of cluster headaches.
  * Galcanezumab has been studied for the prevention of episodic cluster headache attacks in a phase 3 trial at a dose of 300 mg administered as a subcutaneous injection at the onset of the cluster headache and once monthly thereafter until the end of the cluster period.
  * While the galcanezumab trial demonstrated a statistically significant reduction in cluster headache attacks compared to placebo at 3 weeks the treatment effect was similar to placebo at week 8. Additionally, the magnitude of difference is small, there are significant limitations in the applicability of the data, and very limited experience beyond 8 weeks.[1,7]

**SAFETY**[6,19-21]

- The long-term safety of all CGRP-targeted therapies has yet to be established in large populations. Given the mechanism of action of CGRP inhibitors, long-term safety data is needed to assess any unknown risks of long-term inhibition of CGRP and its receptor.
- In 12- to 24-week clinical trials, the most reported reactions were injection site reactions, upper respiratory tract infections, nausea, nasopharyngitis, constipation, muscle spasms, and migraine.

**DOsing CONSIDERATIONS**

- For migraine prophylaxis:
  * Erenumab is dosed as 70 mg subcutaneous injection every 4 weeks. Some patients may benefit from a dosage of 140 mg once monthly.
  * Fremanezumab is dosed as 225 mg subcutaneous injection every month or consolidated to 675mg every three months.
  * Eptinezumab is dosed as 100 mg intravenously every 3 months. Some patients may benefit from a dosage of 300 mg.
  * Galcanezumab is dosed as 240 mg loading dose (administered as two consecutive injections of 120 mg each), followed by 120 mg every month.

- For cluster headache prophylaxis, galcanezumab is dosed as 300 mg at the onset of an attack (administered as three consecutive injections of 100 mg each), followed by 300 mg every month.
<table>
<thead>
<tr>
<th>Appendix 1: International Headache Society Classification of Chronic Migraine Headache [3]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.</strong> Headache (tension-type and/or migraine) on 15 or more days per month for at least 3 months.*</td>
</tr>
<tr>
<td><strong>B.</strong> Occurring in a patient who has had at least 5 attacks fulfilling criteria for a migraine without an aura.</td>
</tr>
<tr>
<td><strong>C.</strong> On 8 or more days per month for at least 3 months headache has fulfilled criteria for pain and associated symptoms of migraine without aura in either or both of criteria 1 or 2 below:</td>
</tr>
<tr>
<td>1. At least two of the following criteria a), b), c), and d) below are met:</td>
</tr>
<tr>
<td>a) Unilateral location</td>
</tr>
<tr>
<td>b) Pulsating quality</td>
</tr>
<tr>
<td>c) Moderate or severe pain intensity</td>
</tr>
<tr>
<td>d) Aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs)</td>
</tr>
<tr>
<td>AND at least one of the following criteria e) or f) below are met:</td>
</tr>
<tr>
<td>e) Nausea and/or vomiting</td>
</tr>
<tr>
<td>f) Photophobia and phonophobia</td>
</tr>
<tr>
<td>2. Treated and relieved by triptan(s) or ergot before the expected development of the above symptoms.</td>
</tr>
<tr>
<td><strong>D.</strong> No medication overuse and not attributed to another causative disorder.</td>
</tr>
</tbody>
</table>

* Characterization of frequently recurring headache generally requires a headache diary to record information on pain and associated symptoms day-by-day for at least one month. Sample diaries are available at [http://www.i-h-s.org](http://www.i-h-s.org).
Appendix 2: International Headache Society Classification of Episodic Cluster Headache [3]

| A. | At least five attacks fulfilling criteria B-D |
| B. | Severe or very severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 minutes (when untreated) |
| C. | Either or both of the following: |
| | 1. at least one of the following symptoms or signs, ipsilateral to the headache: |
| | a) conjunctival injection and/or lacrimation |
| | b) nasal congestion and/or rhinorrhea |
| | c) eyelid edema |
| | d) forehead and facial sweating |
| | e) miosis and/or ptosis |
| | 2. a sense of restlessness or agitation |
| D. | Occurring with a frequency between one every other day and 8 per day |
| E. | Not better accounted for by another diagnosis. |

Episodic Cluster Headache Criteria:
A. Attacks fulfilling criteria for Cluster headache and occurring in bouts (cluster periods)
B. At least two cluster periods lasting from 7 days to 1 year (when untreated) and separated by pain-free remission periods of ≥3 months.

Cross References

| Botulinum toxin type A injection: Botox, onabotulinumtoxinA; Dysport, abobotulinumtoxinA; Xeomin, incobotulinumtoxinA, Medication Policy Manual, Policy No. dru006 |
| Myobloc, rimabotulinumtoxinB, Medication Policy Manual, Policy No. dru045 |
| Oral calcitonin gene-related peptide (CGRP) antagonists and 5- hydroxytryptamine (5-HT) 1f agonists for Acute Migraine, Medication Policy Manual, Policy No. dru635 |

<table>
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<th>Codes</th>
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<td>Injection, fremanezumab-vfrm (Ajovy), 1 mg</td>
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<tr>
<td>HCPCS</td>
<td>J3032</td>
<td>Injection, eptinezumab-jjmr (Vyepti), 1 mg</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
References


19. Emgality® (galcanezumab-gnlm) [prescribing information]. Indianapolis, IN: Eli Lilly and Company; December 2019.


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 10/15/2021    | • Added Site of Care requirements for eptinezumab (Vyepti).
|               | • Removed preferred product step therapy requirements for fremanezumab (Ajovy).
|               | • Updated benefit and administration language section. |
| 1/20/2021     | • Updated Continuation of Therapy (COT) language. No change to intent of policy or COT. |
| 10/28/2020    | • Removed migraine criterion related to medication overuse headache (MOH). |
| 7/22/2020     | • Add Continuation of Therapy (COT) language. |
|               | • Added eptinezumab (Vyepti) to policy (effective 8/15/20). |
| 10/23/2019    | Added coverage criteria for galcanezumab (Emgality) use in episodic cluster headaches. Limits use of galcanezumab (Emgality) for the prevention of episodic cluster headaches in patients that are refractory or have a contraindication to low-cost preventative therapy option. (effective 1/1/2020) |
| 1/31/2019     | No criteria change with this annual update. |
| 12/17/2018    | Revised step therapy criteria. |
| 11/16/2018    | Clarified intent of policy |
| 10/19/2018    | Emgality now FDA approved. Added FDA dosing and benefit coverage. |
| 9/21/2018     | • Ajovy now FDA approved. Added FDA dosing and benefit coverage. |
|               | • Clarified intent of documenting baseline migraine headache frequency and severity in the criteria. No change to intent. |
| 8/17/2018     | Added criteria for use in episodic migraine |
| 4/20/2018     | New policy. |

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Medication Policy Manual

Policy No: dru541

Topic: Supprelin LA, histrelin acetate implant

Date of Origin: November 1, 2018

Committee Approval Date: October 28, 2020

Next Review Date: October 2021

Effective Date: January 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Histrelin implant (Supprelin LA) is a gonadotropin releasing hormone (GnRH) indicated for the treatment of children with central precocious puberty (CPP). It is available as a subcutaneous implant, which is inserted by a healthcare professional and dosed every 12 months.
Policy/Criteria
Most contracts require pre-authorization approval of histrelin implant (Supprelin LA) prior to coverage.

I. Continuation of therapy (COT): Histrelin implant (Supprelin LA) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. Histrelin implant (Supprelin LA) is considered not medically necessary for all indications.

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers histrelin implant (Supprelin LA) to be a self-administered medication. provider-administered medication.
   B. When pre-authorization is approved, histrelin acetate (Supprelin LA) may be authorized in quantities of up to one implant every 12 months.
   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met and that the medication is providing clinical benefit, such as disease stability or improvement.
Position Statement

Summary

- Histrelin implant (Supprelin LA) is a GnRH product indicated for the treatment of children with central precocious puberty (CPP). [1]
- Vantas, another histrelin subcutaneous implant product dosed every 12 months, is available without pre-authorization review (as of the Effective Date of this policy). For details of other available GnRH agonists, see Appendix 1.
- Other GnRH products including leuprolide (Lupron Depot-Ped), nafarelin (Synarel), and triptorelin (Triptodur) are available for the treatment of CPP. These products vary by the route of administration, dosing, and duration of action (See Appendix 1).
- Consensus guidelines equally recommend treatment with the GnRH agonists, but do not recommend one specific option over another, including dosage form. [2]
- Other GnRH products are available that provide better value. Histrelin implant (Supprelin LA) has not been proven to be safer or more effective than other products, but may be more costly than other GnRH treatment alternatives.
- The recommended dose of histrelin acetate (Supprelin LA) is one implant every 12 months. The implant is inserted subcutaneously and provides continuous release of histrelin for 12 months.

Clinical Efficacy

- Approval of histrelin implant (Supprelin LA) in the treatment of CPP was demonstrated in two, single-arm, open label studies. In both trials, suppression of luteinizing hormone was induced in all treatment-naïve subjects and maintained in all pretreated subjects at month 1 after implantation and continued through month 12. [3,4]
- There are no clinical trials demonstrating that one GnRH is superior to another in the treatment of children with CPP, in terms of either safety or efficacy.
- Evidence-based recommendations for CPP have determined that GnRH agonists are all effective despite their differences in routes of administration, dosing, and duration of action. No one product is recommended over another; however, depot preparations are often preferred because of improved compliance. [2]
<table>
<thead>
<tr>
<th>Medication</th>
<th>FDA Approved Indication</th>
<th>Dosing</th>
<th>Route</th>
<th>Administration/Benefit</th>
<th>Cost (AWP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histrelin acetate (Supprelin LA)</td>
<td>Central precocious puberty in children</td>
<td>One 50 mg implant every 12 months inserted SC in the inner aspect of the upper arm, delivering approximately 65 mcg histrelin per day over 12 months</td>
<td>SC implant</td>
<td>Provider/Medical</td>
<td>$47,000/year</td>
</tr>
<tr>
<td>Histrelin acetate (Vantas) *</td>
<td>Palliative treatment of advanced prostate cancer</td>
<td>One 50 mg implant for 12 months inserted SC in the inner aspect of the upper arm, delivering approximately 41 mcg histrelin per day over 12 months.</td>
<td>SC implant</td>
<td>Provider/Medical</td>
<td>$5,600/year</td>
</tr>
</tbody>
</table>
| Leuprolide (Lupron Depot-Ped) * | Central precocious puberty in children   | 1-month suspension depot: 7.5 mg to 15 mg IM once every month based on weight  
3-month suspension depot: 11.25 mg or 30 mg IM every 3 months | IM injection | Provider/Medical          | 1-month suspension depot: $24,200 to $48,400/year  
3-month suspension depot: $43,900 to $48,400/year |
| Leuprolide (Fensolvi) *        | Central precocious puberty in children   | 6-month suspension depot: 45 mg SC injection every 6 months | SC Injection | Provider/Medical          | $54,000/year                |
| Nafarelin (Synarel) *          | Central precocious puberty in children   | Two sprays (400 µg) into each nostril in the morning (4 sprays) and two sprays into each nostril in the evening (4 sprays), a total of 8 sprays (1600 µg) per day. | Nasal spray  | Self-administered/Retail  | $122,000/year               |
| Triptorelin (Triptodur) *      | Central precocious puberty in children   | 22.5 mg IM injection once every 24 weeks | IM injection | Provider/Medical          | $41,300/year                |

* Available without pre-authorization
IM: intramuscular; SC: subcutaneous
<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J9226</td>
<td>Histrelin implant (Supprelin LA)</td>
</tr>
</tbody>
</table>

References

1. Micromedex Healthcare Series [Internet database]. Truven Health Analytics Inc. Updated periodically.

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>10/28/2020</td>
<td>• Added continuation of therapy (COT) criteria.</td>
</tr>
<tr>
<td></td>
<td>• Added Administration, Quantity Limitations, and Authorization Period</td>
</tr>
<tr>
<td></td>
<td>• No other changes to criteria with this annual update.</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>No coverage criteria changes with this annual update.</td>
</tr>
<tr>
<td>05/18/2018</td>
<td>New policy, effective 11/1/2018.</td>
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</table>

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IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Lutetium Lu 177 dotatate (Lutathera) is a radioactive injectable drug that is used for the treatment of specific gastroenteropancreatic neuroendocrine tumors (GEP-NETs) (somatostatin receptor-positive).
Policy/Criteria

Most contracts require pre-authorization approval of lutetium Lu 177 dotatate (Lutathera) prior to coverage.

I. **Continuation of therapy (COT):** Lutetium Lu 177 dotatate (Lutathera) may be considered medically necessary for COT when criterion A, B, or C, AND D below is met

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:

      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   AND

   D. “Administration, Quantity Limitations, and Authorization Period” below applies.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New Starts (Treatment-naïve Patients):** Lutetium Lu 177 dotatate (Lutathera) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

   A. A diagnosis of unresectable, locally advanced, or metastatic gastroenteropancreatic neuroendocrine tumors (GEP-NETs) of the gastrointestinal tract and pancreas (such as foregut, midgut, and hindgut).

   AND
B. Documentation confirming all criteria 1 to 3 below:
   1. One of the following is met (a or b)
      a. Low or intermediate grade GEP-NET, with a documented Ki67 index ≤20%.
      OR
      b. The GEP-NET is well-differentiated
      AND
   2. Positive somatostatin receptor expression of NETs, as detected by somatostatin receptor-based imaging, such as documented uptake on an octreotide scan (octreotide scintigraphy).
      AND
   3. Progressive disease despite treatment with a somatostatin analog (octreotide or lanreotide) for at least 12 weeks duration.
      AND
   C. Use in combination with a long-acting somatostatin analog (either octreotide LAR [Sandostatin LAR] or lanreotide [Somatuline]).

III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers lutetium Lu 177 dotatate (Lutathera) coverable only under the medical benefit (as a provider-administered medication).
   B. When pre-authorization is approved, lutetium Lu 177 dotatate (Lutathera) may be authorized in quantities of 7.4 GBq (200 mCi) for a total of 4 doses per lifetime.

IV. Lutetium Lu 177 dotatate (Lutathera) is considered investigational when used for all other conditions including but not limited to:
   A. Bronchial NETs.
   B. Thymus NETs.

Position Statement
Summary
- Lutetium Lu 177 dotatate (Lutathera) is a radiolabeled somatostatin analog indicated for the treatment of somatostatin receptor-positive GEP-NETs in adults. [1]
- The intent of this policy is to limit coverage of lutetium Lu 177 dotatate (Lutathera) to patients with GEP-NETs (low or intermediate grade or well-differentiated) with positive somatostatin receptor expression who have progressive disease despite treatment with a somatostatin analog.
- GEP-NETs are tumors originating in the neuroendocrine cells of the gastrointestinal system or pancreas including those arising from the foregut (stomach and pancreas), midgut (distal small intestine and proximal colon), and hindgut (distal colon and rectum). [2]

- Lutetium Lu 177 dotatate (Lutathera) is a first-in-class peptide receptor radionuclide therapy (PRRT). In PRRT, a cell-targeting peptide is combined with a radionuclide to create a radiopeptide. When administered into the bloodstream, the radiopeptide travels and binds to the neuroendocrine tumor cells, delivering a high dose of radiation to the cancer. [2]

- The safety and efficacy of lutetium Lu 177 dotatate (Lutathera) was established in a phase 3, multicenter, open-label trial, given in combination with octreotide LAR. [3]

- There are no clinical trials that have demonstrated a superior benefit of lutetium Lu 177 dotatate (Lutathera) in combination with somatostatin analogs as first-line therapy over somatostatin analogs alone.

- Serious adverse effects associated with lutetium Lu 177 dotatate (Lutathera) include risk from radiation exposure, myelosuppression, secondary myelodysplastic syndrome, renal toxicity, hepatotoxicity, neuroendocrine hormonal crisis, embryo-fetal toxicity, and risk of infertility. [1]

- The recommended dose of lutetium Lu 177 dotatate (Lutathera) is 7.4 GBq (200 mCi) every 8 weeks for a total of 4 doses. The safety and effectiveness of higher doses have not been established. [1]

- Lutetium Lu 177 dotatate (Lutathera) is administered in addition to treatment with octreotide LAR and short-acting octreotide for symptom control. Patients treated with lutetium Lu 177 dotatate (Lutathera) are also recommended to receive intravenous (IV) amino acid solutions throughout the lutetium Lu 177 dotatate (Lutathera) infusion and premedication with antiemetics.

- The National Comprehensive Cancer Network (NCCN) guideline recommends the use of lutetium Lu 177 dotatate (Lutathera) as a treatment option for locoregional advanced and/or metastatic somatostatin receptor-positive gastrointestinal tumors (category 1 for mid-gut tumors), pancreatic neuroendocrine tumors, after disease progression on octreotide or lanreotide. [4]

- Evidence to support the safety and effectiveness of lutetium Lu 177 dotatate (Lutathera) in other neuroendocrine tumors is lacking.

Clinical Efficacy

- The efficacy of lutetium Lu 177 dotatate (Lutathera) was evaluated in a phase 3, multicenter, open-label trial. [3]

  * Patients with midgut GEP-NETs who had disease progression despite treatment with octreotide were randomized to receive treatment with lutetium Lu 177 dotatate (Lutathera) every 8 weeks for four doses plus long-acting octreotide for symptom control, or to receive treatment with long-acting octreotide every 4 weeks.
* Patients treated with lutetium Lu 177 dotatate (Lutathera) also received IV amino acid solution throughout the Lutathera infusion.

- The primary endpoint was progression-free survival (PFS), defined as the time from randomization to disease progression or death from any cause. At the time of study publication, PFS was not reached in patients receiving treatment with lutetium Lu 177 dotatate (Lutathera) plus octreotide compared to 8.4 months in patients receiving octreotide alone. [3]

- PFS has not been shown to correspond with improvement in any clinically relevant outcome such as improved overall survival, symptom control, or quality of life in patients with GEP-NETs.

- The clinical trial for the FDA approval only included patients with Ki67 index of less than 20%. However, “well-differentiated NET” and tumor somatostatin receptor expression are considered the key eligibility criteria for response to lutetium Lu 177 dotatate (Lutathera) therapy. [4]

**Guidelines**

- Current guidelines by the NCCN include lutetium Lu 177 dotatate (Lutathera) as a category 2A treatment option for locoregional advanced and/or metastatic somatostatin receptor-positive gastrointestinal tumors (category 1 for progressive mid-gut tumors), or pancreatic neuroendocrine tumors after disease progression on octreotide or lanreotide. [4]

**Investigational Uses**

- Early phase studies evaluating lutetium Lu 177 dotatate (Lutathera) included small numbers of patients with bronchial and thymus NETs. Further trials with larger patient populations are needed to establish a clinical benefit.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.**

**Safety [1]**

- Serious adverse effects associated with lutetium Lu 177 dotatate (Lutathera) include risk from radiation exposure, myelosuppression, secondary myelodysplastic syndrome, renal toxicity, hepatotoxicity, neuroendocrine hormonal crisis, embryo-fetal toxicity, and risk of infertility.

**Dosing [1]**

- The recommended dose of lutetium Lu 177 dotatate (Lutathera) is 7.4 GBq (200 mCi) every 8 weeks for a total of 4 doses. There is no high-quality evidence to support more frequent or more than 4 doses per lifetime.
- Before initiating treatment, long-acting somatostatin analogs should be discontinued for at least 4 weeks and short-acting octreotide at least 24 hours prior to each lutetium Lu 177 dotatate (Lutathera) dose.
- During lutetium Lu 177 dotatate (Lutathera) treatment, long-acting octreotide is administered intramuscularly after each dose and short-acting octreotide is used for symptomatic management.
- Following treatment, long-acting octreotide is given every 4 weeks after completing lutetium Lu 177 dotatate (Lutathera) until disease progression or for up to 18 months following treatment initiation.
- Intravenous amino acid solutions are administered before lutetium Lu 177 dotatate (Lutathera) and continued after infusion. Antiemetics are recommended before the amino acid solution.

Cross References
Pituitary Disorder Therapies, Medication Policy Manual, Policy No. 488

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<td>Malignant carcinoid tumors</td>
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<tr>
<td>HCPCS</td>
<td>A9513</td>
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References
## Revision History

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<th>Revision Summary</th>
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<tr>
<td>10/15/2021</td>
<td>• Updated COT language (no change to intent).&lt;br&gt;• Clarified tumor characteristics for coverage (“well differentiated tumor,” in addition to use of the Ki67 index).</td>
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<tr>
<td>10/28/2020</td>
<td>Added continuation of therapy (COT) criteria, no change to intent of policy.</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>No criteria changes with this annual update.</td>
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<td>06/15/2018</td>
<td>New policy</td>
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Medication Policy Manual

Policy No: dru547

Topic: Crysvita, burosumab-twza

Date of Origin: August 1, 2018

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Crysvita (burosumab-twza) is a medication used to treat specific bone conditions [X-linked hypophosphatemia (XLH) and tumor-induced osteomalacia (TIO)]. Crysvita (burosumab-twza) is given by subcutaneous (SC) injection.
Policy/Criteria
Most contracts require pre-authorization of Crysvita (burosumab-twza) prior to coverage.

I. Continuation of therapy (COT): Crysvita (burosumab-twza) may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment naïve): Crysvita (burosumab-twza) may be considered medically necessary when there is clinical documentation (including chart notes) that criterion A or B below is met:

A. A diagnosis of tumor-induced osteomalacia (TIO) when criteria 1 and 2 below are met:
   1. Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].
   AND
   2. The diagnosis is established by or in consultation with an endocrinologist or other specialist with experience with metabolic bone health.

OR
B. A diagnosis of **X-Linked Hypophosphatemia** (XLH) when criteria 1 through 5 below are met:

1. Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

   **AND**

2. The diagnosis is established by or in consultation with an endocrinologist or other specialist with experience with metabolic bone health.

   **AND**

3. The diagnosis of XLH is confirmed by:
   
a. Clinical documentation of genetic testing showing a mutation in the phosphate-regulating endopeptidase homolog X-linked (PHEX) gene.
   
   **OR**

   b. Elevated FGF23 levels AND biochemical findings consistent with XLH including all the following:
      1. Hypophosphatemia.
      2. Low-normal 1,25(OH)2D.
      3. Elevated serum alkaline phosphatase (Alk phos).

   **AND**

4. Documented clinical manifestations of symptomatic XLH, including, but not limited to, at least one of the following symptoms:
   
a. Radiographic evidence of active bone disease, including active fractures.
   
b. **Pediatric only:** Short stature, defined as two standard deviations (3rd percentile) or more below for height by age and gender, or declining growth rate (as documented with provided standard growth charts).
   
c. Skeletal pain or deformities.
   
d. Tooth abscesses.

   **AND**

5. Activated vitamin D and phosphate supplements are ineffective (as defined by symptomatic XLH) after use for at least 12 months, unless the use of both are not tolerated or are contraindicated (see Appendices 1, 2, and 3). If unable to tolerate phosphate supplements, dose lowering attempts must be made to achieve the maximally tolerated therapeutic doses.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Crysvita (burosumab-twza) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Crysvita (burosumab-twza) may be authorized in quantities defined in Tables 1 and 2 below.
Table 1: Tumor-Induced Osteomalacia (TIO) Authorization Quantity Limits (QL) and Review Criteria

<table>
<thead>
<tr>
<th></th>
<th>Initial Authorization</th>
<th>Continued Authorization</th>
</tr>
</thead>
</table>
| Pediatric QL        | • Doses up to 0.4 mg/kg every two weeks (minimum of 10 mg and not to exceed 180 mg per dose).  
                          • Doses up to 2 mg/kg every two weeks (not to exceed 180 mg per dose) may be authorized if there is clinical documentation of an inadequate response to 0.4 mg/kg every two weeks. Inadequate response is defined as not achieving a normal serum phosphorus. | 6 doses in 12 weeks  
                          26 doses per 52 weeks |
| Adult QL            | • Doses up to 0.5 mg/kg every four weeks (minimum of 10 mg and not to exceed 180 mg per dose).  
                          • Doses up to 2 mg/kg every four weeks (not to exceed 180 mg per dose) may be authorized if there is clinical documentation of an inadequate response to 0.5 mg/kg every four weeks. Inadequate response is defined as not achieving a normal serum phosphorus. | 3 doses in 12 weeks  
                          13 doses per 52 weeks |
| Reauthorization      | **Initial Authorization:** Shall be reviewed at 12 weeks. Ongoing coverage of Crysvita (burosumab-twza) requires clinical documentation, including chart notes, that there is normalization of serum phosphorus (within laboratory’s normal range, or see Appendix 1). If there are persistently low serum phosphorus levels after 12 weeks, no further Crysvita (burosumab-twza) will be authorized. | **Continued Authorization:** Shall be reviewed at least annually. Ongoing coverage of Crysvita (burosumab-twza) requires clinical documentation, including chart notes, that there is ongoing disease improvement defined by 1 and 2 below:  
  1. Normalization of serum phosphorus (within laboratory’s normal range, or see Appendix 1).  
  AND  
  2. At least one of the following:  
     a. Improvement of skeletal deformities.  
     b. Improvement in growth velocity.  
     c. Radiographic evidence of reduced bone disease activity and/or epiphyseal healing.  
     d. Reduction in tooth abscesses.  
     e. Reduction in bone pain (as documented by a validated pain scale, functional improvement in ADLs, and a reduction in the use of pain medication). |
Table 2: X-Linked Hypophosphatemia (XLH) Authorization Quantity Limits (QL) and Review Criteria

<table>
<thead>
<tr>
<th></th>
<th>Initial Authorization</th>
<th>Continued Authorization</th>
</tr>
</thead>
</table>
| **Pediatric QL**       | • Doses up to 0.8 mg/kg every two weeks (minimum of 10 mg and not to exceed 90 mg per dose).  
  • Doses up to 2 mg/kg every two weeks (not to exceed 90 mg per dose) may be authorized if there is clinical documentation of an inadequate response to 0.8 mg/kg every two weeks. Inadequate response is defined as not achieving a normal serum phosphorus.  
  6 doses in 12 weeks                                              | 26 doses per 52 weeks                       |
| **Adult QL**           | Doses up to 1 mg/kg every 4 weeks (minimum of 10 mg and not to exceed 90 mg per dose).  
  3 doses in 12 weeks                                              | 13 doses per 52 weeks                       |
| **Reauthorization Review Criteria** | **Initial Authorization:** Shall be reviewed at 12 weeks. Ongoing coverage of Crysvita (burosumab-twza) requires clinical documentation, including chart notes, that there is normalization of serum phosphorus (within laboratory’s normal range, or see Appendix 1). If there are persistently low serum phosphorus levels after 12 weeks, no further Crysvita (burosumab-twza) will be authorized. | **Continued Authorization:** Shall be reviewed at least annually. Ongoing coverage of Crysvita (burosumab-twza) requires clinical documentation, including chart notes, that and there is ongoing disease improvement defined by 1 and 2 below:  
  1. Normalization of serum phosphorus (within laboratory’s normal range, or see Appendix 1).  
  AND  
  2. At least one of the following:  
  a. Improvement of skeletal deformities.  
  b. Improvement in growth velocity.  
  c. Radiographic evidence of reduced bone disease activity and/or epiphyseal healing.  
  d. Reduction in tooth abscesses.  
  e. Reduction in bone pain (as documented by a validated pain scale, functional improvement in ADLs, and a reduction in the use of pain medication). |
IV. Crysvita (burosumab-twza) is considered investigational when used for all other conditions.

Position Statement

Summary

- Crysvita (burosumab-twza) is a recombinant human IgG1 monoclonal antibody used for the treatment of patients with X-linked hypophosphatemia (XLH) and tumor-induced osteomalacia (TIO).
- Intent of this policy is to allow for coverage of Crysvita (burosumab-twza) for confirmed diagnoses of TIO, as well as symptomatic XLH (when standard of care step therapy is ineffective), for up to the doses shown to be safe and effective in clinical trials, as detailed in the coverage criteria.

XLH

- XLH is a hereditary phosphate wasting condition, caused by inactivating mutations in the phosphate-regulating endopeptidase homolog X-linked (PHEX) gene. This leads to an increase in fibroblast growth factor 23 (FGF23 levels), which then causes renal wasting and decreased intestinal absorption of phosphate.
- The diagnosis is confirmed with genetic testing for the PHEX mutation. Hypophosphatemia, low-normal 1,25(OH)2D, elevated serum alkaline phosphatase (in children), and normal serum calcium are common biochemical features of XLH.
- Historically, the standard of care for XLH is treatment with activated vitamin D and phosphate supplements (conventional therapy) when pharmacologic treatment is warranted. In children, height velocity commonly improves during the initial year of conventional therapy. Crysvita (burosumab-twza) is the only medication that treats the underlying cause of XLH, elevated FGF23 levels.[1]
- XLH is a variable disease. For patients with mild disease and an absence of symptoms, the risk of adverse events from treatment does not outweigh the potential benefit. Asymptomatic and mildly symptomatic adults are often not treated with activated vitamin D or phosphate supplements, as these patients are unlikely to receive benefit from treatment. Children are started on therapy as soon as the diagnosis of XLH is confirmed.
- The safety and efficacy of Crysvita (burosumab-twza) was established based on 4 clinical trials in patients with symptomatic XLH, despite adequate trials of activated vitamin D and phosphate supplements. There is currently no data on the safety and efficacy of burosumab-twza in XLH patients that are naïve to conventional therapy with activated vitamin D and phosphate supplements.
- There is insufficient evidence to establish that Crysvita (burosumab-twza) is more effective than vitamin D and phosphate supplements at this time. In addition, no published studies have demonstrated superiority of Crysvita (burosumab-twza) as compared to activated vitamin D and phosphate supplementation in the treatment of XLH in adult patients (closed epiphyseal plate).
- Clinical trials demonstrated that Crysvita (burosumab-twza) improves serum phosphorus levels during treatment, but did not demonstrate any clinically relevant outcomes over conventional therapy. Thus, patients with serum phosphorus within the
normal range may not see any additional benefit and would see an increased risk of developing adverse events due to hyperphosphatemia.

- In patients without a normalization of serum phosphorus after 12 weeks of Crysvita (burosumab-twza) treatment, continued use of Crysvita (burosumab-twza) is considered not medically necessary.

- Crysvita (burosumab-twza) may be covered in the doses shown to be safe and effective in XLH trials (up to 90 mg subcutaneously every two to four weeks depending on age). Doses higher than 90 mg per injection have not been adequately studied in XLH.

**TIO**

- TIO is a rare condition caused by small tumors that produce high levels of FGF23. This results in phosphate wasting and impaired vitamin D synthesis.

- Symptoms of TIO include osteomalacia, bone fractures, bone pain, and reduced mobility.

- Crysvita (burosumab-twza) may be covered in the doses shown to be safe and effective in TIO trials (up to 180 mg subcutaneously every two to four weeks depending on age). Doses higher than 180 mg per injection have not been adequately studied in TIO.

- Although Crysvita (burosumab-twza) is FDA-approved in the adult setting up to every 2 weeks, clinical trials only evaluated every 4-week dosing. Therefore, more frequent dosing than every 4 weeks is considered not medically necessary for adult TIO patients.

- It is not recommended that Crysvita (burosumab-twza) be administered concomitantly with activated vitamin D and phosphate supplements, due to the potential for hyperphosphatemia.

**Clinical Efficacy**

**X-linked Hypophosphatemia**

- The safety and efficacy of burosumab-twza in XLH was established based on four trials, one adult trial and three pediatric trials. Patients were not allowed to be on activated vitamin D or phosphate supplements during the published adult or pediatric trials, but greater than 92% of children receiving burosumab-twza had received prior activated vitamin D and phosphate therapy.

* One adult phase 3, randomized, placebo-controlled trial found a significant difference in proportion of adult XLH patients achieving a serum phosphorus level >LLN in the burosumab-twza treated group (94.1%) vs placebo (7.6%) (p<0.0001) at 24 weeks.[2]

  - The improvement in the WOMAC stiffness scores at week 24 was also better in the burosumab-twza group versus placebo (p<0.01).

    - The reliability, validity and responsiveness of the WOMAC stiffness subscale has very limited data associated with its use.

  - There was no statistically significant improvement in pain or WOMAC physical function scores between the burosumab-twza and placebo groups at 24 weeks. Data after week 24 was unblinded and has not been published in any peer reviewed journal.

  - An exploratory endpoint of fracture healing at 24 weeks showed a higher percentage of patients had fractures heal (43.1% and 7.7%) in the
burosumab-twza versus placebo groups, respectively. After week 24, the placebo arm began receiving burosumab-twza. At week 48, fracture healing improved to 63.1% and 35.2%, in the burosumab-twza and placebo-burosumab-twza arm, respectively.[3]

- Serum phosphorus level is a surrogate endpoint that does not correlate to an improvement of clinical outcomes. In practice, response to therapy is determined by symptomatic responses, such as a decrease in bone pain, reductions in fractures, and an improvement of osteomalacia.

* One phase 3, open label, active-controlled trial (n=61) in pediatric patients with XLH (age 1-12) found a greater improvement in the Radiographic Global Impression of Change (RGI-C) in the burosumab-twza-treated group compared to the conventional therapy group. Both burosumab-twza and conventional therapy resulted in an improvement in RGI-C, however, burosumab-twza had a greater improvement (+1.9 vs +0.8) at week 40. The long-term clinical relevance and benefit of burosumab-twza versus conventional therapy is unknown at this time. [4]

* One phase 2, open label, dose-finding trial in pediatric patients with XLH (age 5-12) found an improvement in Rickets Severity Score (RSS) and RGI-C score with burosumab-twza every two weeks (at week 40).[5]

* One phase 2, open label, single arm trial in pediatric patients (age 1-4) found an improvement in serum phosphorus at week 40.[6]

Tumor-induced Osteomalacia [7]

- The safety and efficacy of burosumab-twza in TIO is based on the results of an ongoing, single arm, open-label, phase 2 trial (n=14). Burosumab-twza was dosed up to 2mg/kg every 4 weeks. More frequent dosing was not studied.
  - An improvement in the surrogate endpoints of serum phosphorus and other measures of osteomalacia (osteoid thickness, mineralization lag time) were improved at week 144 compared to baseline.
  - In addition, there was an improvement in reported pain scores and fracture healing at week 144, compared to baseline.

Clinical Guidelines/Standard of Care Treatment[1 8]

- Evidence-based XLH guidelines were published in 2019 and recommend the following:
  
  Pediatric XLH
  - Treat children with XLH with conventional therapy (activated vitamin D and phosphate supplementation) as soon as the diagnosis of XLH is established.
  - Most pediatric patients are treated with activated vitamin D and phosphate supplements from diagnosis until the epiphyseal plate has fused, and growth stops.
  - If available, consider burosumab-twza treatment in children with XLH ≥1 year and in adolescents with growing skeletons in the following situations: radiographic evidence of overt bone disease and disease that is refractory to conventional therapy; or complications related to conventional therapy; or
patient’s inability to adhere to conventional therapy, presuming that adequate monitoring is feasible.

* Treatment goals in the pediatric population include improvement in height velocity and overall growth, correction of rickets, improvement of radiographic abnormalities, and healing of skeletal deformities.

**Adult XLH**

* Unlike in the pediatric population, use of activated vitamin D and phosphates supplements in the adult population is not always required. Use of these agents is associated with high burden and potentially toxic side effects. Therefore, many adults do not receive treatment for their XLH after the epiphyseal plate has fused

* Treat symptomatic adults with XLH with conventional therapy (activated vitamin D and phosphate supplementation).

* If available, consider burosumab-twza treatment in adults with XLH (XLH) with the following features: persistent bone or joint pain due to XLH, osteomalacia that limits daily activities, pseudo-fractures or osteomalacia-related fractures, and an insufficient response to conventional therapy.

* Treatment goals for adults include a reduction in bone pain, improvement of osteomalacia, and improvement in fracture healing or surgical recovery time.

**Safety**

- Several cases of hyperphosphatemia occurred in the phase 3 adult XLH trial, and subsequently required dose reduction.

- The Crysvita (burosumab-twza) prescribing information contains warnings about the risk of hypersensitivity, injection site reactions, hyperphosphatemia and nephrocalcinosis. [9]

- The most common side effects observed in patients receiving Crysvita (burosumab-twza) in clinical trials include: headache, injection site reactions, vomiting, pyrexia, pain in extremity, hyperphosphatemia, decreased vitamin D levels, tooth abscess, muscle spasms, dizziness, constipation and rash.

**Dosing and administration**

- Crysvita (burosumab-twza) is administered as a subcutaneous injection at doses up to every 14 days or every 28 days in the pediatric and adult XLH settings, respectively. The maximum doses are 90mg for XLH and 180 mg in TIO. The safety and efficacy of Crysvita (burosumab-twza) at higher doses or a greater frequency has not been adequately evaluated.
### Appendix 1: Serum Phosphorus Levels by Age (years)\[^{10}\]

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>4.3-5.4mg/dL</td>
<td>4.3-5.4mg/dL</td>
</tr>
<tr>
<td>5-13</td>
<td>3.7-5.4mg/dL</td>
<td>4.0-5.2mg/dL</td>
</tr>
<tr>
<td>14-15</td>
<td>3.5-5.3mg/dL</td>
<td>3.5-4.9mg/dL</td>
</tr>
<tr>
<td>16-17</td>
<td>3.1-4.7mg/dL</td>
<td>3.1-4.7mg/dL</td>
</tr>
<tr>
<td>≥18</td>
<td>2.5-4.5mg/dL</td>
<td>2.5-4.5mg/dL</td>
</tr>
</tbody>
</table>

### Appendix 2: FDA-Approved Phosphate Supplements

Initial recommended range of elemental phosphorus doses: 20-40mg/kg/day in 3-5 divided doses\[^{1}\]

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phospha 250 Neutral Tablet</td>
<td>K-Phos Tablet</td>
</tr>
<tr>
<td>K-Phos Neutral Tablet</td>
<td>Phospho-Trin 250 Neutral Tablet</td>
</tr>
<tr>
<td>Virt-Phos 250 Neutral Tablet</td>
<td>AV-Phos 250 Neutral</td>
</tr>
<tr>
<td>Potassium Phosphate</td>
<td>Sodium Phosphate</td>
</tr>
</tbody>
</table>

### Appendix 3: FDA-Approved Activated Vitamin D

Initial recommended range of calcitriol doses: 20 to 30 ng/kg/day in 2 to 3 divided doses,\[^{1}\]

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcitriol</td>
<td>Paricalcitol</td>
</tr>
<tr>
<td>Rocaltrol</td>
<td>Zemplar</td>
</tr>
</tbody>
</table>

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J0584</td>
<td>Injection, burosumab-twza (Crysvita) 1 mg</td>
</tr>
</tbody>
</table>

### Cross References

Site of Care Review, Medication Policy Manual, Policy No. dru408
References


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>No criteria updates with this annual review.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>No criteria updates with this annual review.</td>
</tr>
</tbody>
</table>
| 7/22/2020     | • Added continuation of therapy (COT) criteria.  
|               | • Added coverage criteria for symptomatic adult XLH patients (closed epiphyseal plate) based on evolving evidence.  
|               | • Added coverage criteria for tumor-induced osteomalacia (TIO), a new FDA approved indication. |
| 7/24/2019     | The covered Quantity Limitations (QL) in Section II were clarified to state “pediatric authorization.” Addition of criterion to re-auth language to cover reduction in bone pain. Added to SOC program (effective 11/1/2018). |
| 7/20/2018     | New policy, effective 8/1/2018. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru548

Topic: Non-preferred testosterone replacement therapy products (see Table 1)

Date of Origin: September 1, 2018

Committee Approval Date: October 15, 2021

Next Review Date: December 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Testosterone replacement therapy (TRT) products are used in the treatment of hypogonadism (testosterone deficiency), as well as gender dysphoria, delayed puberty, and metastatic breast cancer. The effectiveness of TRT is monitored by assessing serum testosterone levels, as well as improvement in symptoms, such as mood, fatigue, bone mineral density, and well-being.

Please note the following:

Not subject to pre-authorization (PA): generic testosterone injection (cypionate or enanthate).

Subject to PA and included in this policy:
- Branded testosterone enanthate (Xyosted)
- Testosterone undecanoate (Aveed)
- Commercially available testosterone pellets (Testopel, generic)

Subject to PA and included in the Compounded Medications policy: Any compounded testosterone product (such as non-FDA approved creams, gels, and implants).
Policy/Criteria

Most contracts require pre-authorization approval of non-preferred testosterone replacement therapy (TRT) products as listed in Table 1, prior to coverage.

I. Continuation of therapy (COT): Non-preferred testosterone replacement therapy (TRT) products may be considered medically necessary for COT criterion A or B below is met.

A. For subcutaneous pellets (as listed in Table 1), the patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

OR

B. For all other products (as listed in Table 1), criteria 1 and 2 must be met:
1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. One of the following applies:
   a. Diagnosis of gender dysphoria, delayed puberty, or metastatic breast cancer.

   OR

   b. Diagnosis of hypogonadism and at least one generic TRT product has been ineffective, not tolerated or is contraindicated.

*Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.*

II. New starts (treatment-naïve patients): Non-preferred testosterone replacement therapy (TRT) products, may be considered medically necessary when criteria in the table below is met:

New to therapy (treatment-naïve) members:

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Criteria Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed puberty</td>
<td>Treatment with injectable testosterone cypionate (generic) or testosterone enanthate (generic) has been ineffective, contraindicated, or not tolerated.</td>
</tr>
<tr>
<td>Gender dysphoria</td>
<td>Treatment with <em>at least two</em> generic TRT products (including one generic injectable TRT; See Appendix 1) has been ineffective, not tolerated or is contraindicated.</td>
</tr>
<tr>
<td>Hypogonadism</td>
<td>Treatment with <em>at least two</em> generic TRT products (including one generic injectable TRT, see Appendix 1) have been ineffective, not tolerated, or is contraindicated.</td>
</tr>
<tr>
<td>Metastatic breast cancer</td>
<td>Treatment with injectable testosterone cypionate (generic) or testosterone enanthate (generic) has been ineffective, contraindicated, or not tolerated.</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
III. TRT products are considered investigational when used for all other conditions, including but not limited to:

A. In women when used for post-menopausal symptoms, including but not limited to, infertility, sexual dysfunction, cognitive dysfunction, metabolic dysfunction, bone health or general well-being.

IV. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers oral, nasal, topical, and transdermal testosterone replacement therapy (TRT) products coverable only under the pharmacy benefit (as self-administered medications).

B. Regence Pharmacy Services considers Aveed, Xyosted, and commercially available testosterone pellets (generic, Testopel) coverable only under the medical benefit (as provider-administered medications).

C. When pre-authorization is approved, TRT products will be authorized as follows in Table 1.

D. Quantities above the listed quantity limits are considered not medically necessary.

E. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.
# Table 1: Non-Preferred Testosterone Replacement Therapy (TRT) Products

<table>
<thead>
<tr>
<th>TRT Products</th>
<th>Quantity Level Limitation (per Month, unless noted)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transdermal</strong></td>
<td></td>
</tr>
<tr>
<td>Brand AndroGel testosterone topical gel 1% (25 mg and 50 mg packets)</td>
<td>60 packets</td>
</tr>
<tr>
<td>Brand AndroGel testosterone topical gel 1.62% (20.25 mg and 40.5 mg packets)</td>
<td>60 packets</td>
</tr>
<tr>
<td>Brand AndroGel testosterone topical gel 1.62% Pump (20.25 mg per actuation)</td>
<td>2 pump bottles (60 actuations/bottle)</td>
</tr>
<tr>
<td>Brand Fortesta testosterone topical gel 2% (10 mg per actuation)</td>
<td>2 pump bottles (120 actuations/bottle)</td>
</tr>
<tr>
<td>Brand Testim Gel testosterone topical gel 1% (50 mg/5 gm tubes)</td>
<td>60 tubes</td>
</tr>
<tr>
<td>Brand Androderm testosterone transdermal patch (2.4 mg/24 hours)</td>
<td>2-mg/24 hour: 60 patches 4-mg/24 hour: 30 patches</td>
</tr>
<tr>
<td><strong>Subcutaneous pellet</strong></td>
<td></td>
</tr>
<tr>
<td>testosterone 75 mg pellet (Testopel) generic testosterone 25 mg pellet generic testosterone 50 mg pellet generic testosterone 100 mg pellet generic testosterone 200 mg pellet</td>
<td>Up to 900 mg in any combination every 3 months (not to exceed 12 pellets of brand Testopel 75 mg every 3 months).</td>
</tr>
<tr>
<td><strong>Oral/Buccal</strong></td>
<td></td>
</tr>
<tr>
<td>testosterone 30 mg extended-release buccal tablets (Striant)</td>
<td>60 tablets</td>
</tr>
<tr>
<td>testosterone undecanoate 158 mg, 198 mg, 237 mg capsules (Jatenzo)</td>
<td>120 capsules</td>
</tr>
<tr>
<td><strong>Nasal gel</strong></td>
<td></td>
</tr>
<tr>
<td>testosterone nasal gel 4.5% (Natesto metered-dose pump bottle); 5.5 mg per actuation</td>
<td>3 pump bottles (60 actuations per bottle)</td>
</tr>
<tr>
<td><strong>Injection</strong></td>
<td></td>
</tr>
<tr>
<td>testosterone enanthate (Xyosted)</td>
<td>Up to 4 injections per 28 days (50 mg, 75 mg, or 100 mg per injection).</td>
</tr>
<tr>
<td>testosterone undecanoate (Aveed); 750 mg per dose</td>
<td>750 mg at initiation, 4 weeks, and every 10 weeks thereafter</td>
</tr>
</tbody>
</table>

*These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.*
Position Statement

- Testosterone replacement therapy (TRT) is commonly used for treatment of documented primary (testicular) or secondary (hypothalamic) hypogonadism in men, delayed puberty in males, or as part of gender dysphoria therapy. All products are considered effective for increasing serum testosterone levels.

- There is no evidence demonstrating that any one TRT product is safer or more effective than the least costly generic injectable TRT options. There are no studies that directly compare the clinical effects of different TRT products.

- The intent of this policy is to encourage the use of best value (lower cost) TRT products.

Cost

- While branded TRT products are comparable in price, generic testosterone cypionate and generic testosterone enanthate offer members the best value and they are available at preferred copayments.

- Due to the availability of many testosterone formulations, quantities above the quantity limits listed above in Table 1 are considered not medically necessary. The quantity limits listed correspond with the manufacturer's prescribing information for each medication. There is a lack of literature showing improved health outcomes and safety when the maximum dosing is exceeded.

Clinical Efficacy

- No single testosterone replacement therapy (TRT) product has been proven in reliable clinical studies to be more effective than another TRT product.

- All TRT products appear to be similarly effective based on pharmacokinetic data. There is pharmacokinetic evidence that all topical testosterone products replete testosterone levels in men with hypogonadism. [9]

- There are no trials comparing any branded TRT formulation, therefore there is no evidence that one branded TRT product is superior to another.

- Long-term health outcomes of TRT, such as decreased incidence of fracture or cardiovascular risk, are uncertain. [8,10]

- Clinical guidelines recognize TRT as standard of care and effective for treatment of hypogonadism in men. All products are considered effective in raising testosterone levels. Choice of TRT product is based on pharmacokinetics, patient preference, and cost. However, oral TRT is not recommended due to poor absorption and liver toxicity. [1]

- The efficacy of TRT has not been established in men with age-related hypogonadism.

- There are no valid, reliable, clinically relevant endpoints for studies assessing the effect of testosterone on desire, frequency of sexual activity, erectile function, mood, energy, cognitive dysfunction, metabolic dysfunction, overall quality of life, body composition (lean and fat body mass), and bone mineral density in men with age-related hypogonadism.
Safety

- Overall, testosterone topical replacement (TRT) is well tolerated. Common adverse effects (≥ 3%) include acne, gynecomastia, oral irritation (buccal formulation), headache, and enlarged prostate. The most commonly reported adverse event with topical TRT is application site reactions. However, testosterone transdermal patch (Androderm) is associated with a significantly higher rate of skin reactions, including blistering of the skin. [7,9]

- TRT may be associated with increased risk of adverse cardiovascular outcomes (increased mortality, myocardial infarction, and stroke). Although findings in several large observational studies and meta-analyses are inconsistent, the FDA’s Bone, Reproductive and Urologic Drugs Advisory Committee concluded that there is a small signal of risk. Based on conclusions reached in the advisory committee, the FDA subsequently released a drug safety communication related to the CV risk and will require labeling changes for all prescription testosterone products. [8,10-13]

- TRT is contraindicated in men with known or suspected prostate cancer. [1]

- Testosterone undecanoate (Aveed) has boxed warnings for pulmonary oil microembolism (POME) reactions and anaphylaxis. POME reactions may be life threatening; symptoms include cough, dyspnea, throat tightening, chest pain, dizziness, and syncope. Patients who received testosterone undecanoate (Aveed) must be monitored in a healthcare setting for 30 minute post-dose in case of serious POME reactions or anaphylaxis. [7]

- Testosterone has been subject to abuse, typically at doses higher than recommended for the approved indication and in combination with other anabolic androgenic steroids. [14]

- In March 2015, the FDA released a drug safety communication clarifying that the benefits and safety of TRT have not been established for the treatment of low testosterone levels due to aging (“age-related hypogonadism”), even if a man’s symptoms seem related to low testosterone. The communication also stated that there is a possible increased cardiovascular risk associated with testosterone use. [8]

- Since the initial drug safety communication, a limitation of use has been added to the prescribing information for multiple testosterone replacement products. The updated labeling states that safety and efficacy has not been established for age-related hypogonadism (also referred to as late-onset hypogonadism).

- In 2009, the FDA issued a MedWatch safety alert of inadvertent (secondary) testosterone exposure with topical testosterone gel (Testim and AndroGel), based on eight case reports of exposure in children, age nine months to five years old. Signs of virilization (development of male secondary sexual characteristics) and bone aging were observed. Black box warnings are now required on all topical gel and solution formulations of testosterone, as well as educational REMS programs to reduce secondary exposure. [15]
Appendix 1: Generic Testosterone Replacement Therapy (TRT) Products [no PA required] ¹

<table>
<thead>
<tr>
<th>Topical</th>
</tr>
</thead>
<tbody>
<tr>
<td>testosterone topical gel 1%</td>
</tr>
<tr>
<td>testosterone topical gel 1.62% (Commercial plans only. Product is non-formulary on Exchange plans)</td>
</tr>
<tr>
<td>testosterone topical solution 2%</td>
</tr>
<tr>
<td>testosterone topical gel 2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyltestosterone 10 mg capsule</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Injectable</th>
</tr>
</thead>
<tbody>
<tr>
<td>testosterone cypionate</td>
</tr>
<tr>
<td>testosterone enanthate</td>
</tr>
</tbody>
</table>

¹ Note: all the TRTs in this table are FDA-approved products. Use of compounded TRTs (non-FDA approved formulations such as creams, gels, implants) are subject to review as a “Compounded Medication”

**Cross References**


Compounded Medications, Medication Policy Manual, Policy No. dru135

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J3145</td>
<td>Testosterone undecanoate (Aveed), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>S0189</td>
<td>Testosterone pellet (Testopel), 75 mg</td>
</tr>
</tbody>
</table>
References


5. Ellis, M, Naughton, MJ, Ma, CX. Treatment approach to metastatic hormone receptor-positive breast cancer: Endocrine therapy. In: UpToDate, Basow, DS (Ed). UpToDate, Waltham, MA, 2015.


## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 10/15/2021    | • Moved Aveed from NMN to coverage criteria.  
                • Updated COT language. |
| 10/28/2020    | Added investigational uses (use in post-menopausal women, including but not limited to infertility, sexual dysfunction; cognitive dysfunction, metabolic dysfunction, bone health or general well-being). |
| 1/22/2020     | Simplified policy to step therapy only. Removed most generic products from policy. Added COT language and updated references to compounded products. |
| 10/24/2019    | Clarified coverage for new members established on TRT therapy; clarified definition of low testosterone level. Removed brand Axiron and brand and generic Androxy from policy – no longer marketed. Clarified that initial lab values provided for coverage must be within the last 12 months. Updated reauth criteria to clarify that lab values provided must be within the last 12 months of treatment. |
| 04/04/2019    | Added Jatenzo to policy (effective 6/3/2019). |
| 10/19/2018    | Simplification of the criteria for gender dysphoria. (effective 12/1/2018)  
                Removal of AndroGel 1.62% as a preferred product due to availability of a generic. (effective 12/1/2018) |
| 10/9/2018     | Add Xyosted, a new branded reformulation of testosterone enanthate. |
| 07/20/2018    | New policy, effective 9/1/2018. Policy is a combination of previous separate policies for preferred and non-preferred products. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Blood Factors for Hemophilia A, extended-half-life (EHL) products

- Adynovate, antihemophilic factor (recombinant), PEGylated
- Afstyla, antihemophilic factor (recombinant), single chain
- Eloctate, antihemophilic factor (recombinant), Fc fusion protein
- Esperoct, antihemophilic factor (recombinant), glycopegylated-exei
- Jivi, antihemophilic factor (recombinant), PEGylated

Policy No: dru549

Date of Origin: January 1, 2019

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Extended half-life (EHL) factor VIII (EHL FVIII) blood products are used for blood factor replacement in patients with hemophilia A when standard half-life (SHL) FVIII products are not a treatment option. They are used “on-demand” for bleeding episodes or perioperative management of bleeding, and as routine prophylaxis to reduce frequency of bleeding episodes.
Policy/Criteria

Most contracts require pre-authorization of extended half-life (EHL) blood factor VIII (EHL FVIII) products for hemophilia A prior to coverage.

I. **Continuation of therapy (COT):** Extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) may be considered medically necessary for COT when criterion A or B below is met.

   A. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan. 
   
   OR

   B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   *Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment naïve patients):** Extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met:

   A. A diagnosis of *hemophilia A*, established by or in consultation with a hematologist.

   AND

   B. Standard half-life (SHL) blood factor VIII (SHL FVIII) products are not a treatment option, as defined by meeting one of the following (criterion 1 or 2):

   1. SHL FVIII products have been ineffective as defined by criteria a and b below:

      a. The patient has used SHL FVIII products for at least 50 days (also referred to as “exposure days”).

      AND

      b. The patient has continued to have documented (e.g., bleed diary or detailed provider notes) clinically significant bleeding events (such as target joint bleeds or other end-organ damage) despite adherent use of SHL FVIII products (dose and dose frequency, as listed in Appendix 1).

   OR

   2. There is a documented objective clinical reason that all available recombinant SHL FVIII blood factor products are not appropriate (as listed in Appendix 2).
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) coverable under the medical benefit or pharmacy benefit. Determination of coverage under the pharmacy or medical benefit is based on group-specific benefits, as defined in the group and member contract (as determined by the member contract with the health plan, regardless of self- or provider-administration).

B. Quantity Limits

1. Extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) will be authorized up to FDA-recommended dose and frequency limits (Table 1).

2. Escalated dosing (quantities above FDA-recommended dose and frequency limits) may be covered when criteria a and b below are met:
   a. There is documentation that the FDA-recommended dose is ineffective (clinically significant bleeding events such as target joint bleeds or other end-organ damage while adherent to therapy).
   AND
   b. Attestation that the escalated dosing is supported by a full or population-based pharmacokinetic (PK) studies.

C. Authorization Periods

1. Extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) will be authorized for up to one year.

2. Authorization shall be reviewed at least annually to confirm that the medication continues to be effective.

IV. The use of extended half-life (EHL) blood factor products for hemophilia A (EHL FVIII) for all other conditions not specified above is considered investigational.

Table 1. FDA-Recommended Dose and Frequency Limits

<table>
<thead>
<tr>
<th>Product</th>
<th>FDA-recommended Dosing</th>
<th>Maximum Doses (per 28 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adynovate[H]</td>
<td>Prophylaxis:</td>
<td>Prophylaxis:</td>
</tr>
<tr>
<td></td>
<td>&gt;12 years old: Up to 50 IU/kg two times per week.</td>
<td>&gt;12 years old: Up to FDA-labeled dose (+/-5%) for a total of 8 doses per 28 days.</td>
</tr>
<tr>
<td></td>
<td>&lt;12 years old: Initially up to 55 IU/kg two times per week with a maximum of 70 IU/kg.</td>
<td>&lt;12 years old: Up to FDA-labeled dose (+/- 5%) for a total of 8 doses per 28 days.</td>
</tr>
<tr>
<td></td>
<td>On-demand:</td>
<td>On-demand:</td>
</tr>
<tr>
<td></td>
<td>Up to 50 IU/kg every 8 to 24 hours until the bleeding is resolved.</td>
<td>Up to FDA-recommended dose (+/- 5%) for the number doses requested every 28 days.</td>
</tr>
</tbody>
</table>

September 1, 2022 © 2022 Regence All rights reserved. These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
<table>
<thead>
<tr>
<th>Perioperative:</th>
<th>Perioperative:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor surgery: Up to 50 IU/kg every 24 hours for at least 1 day until bleeding is resolved.</td>
<td>Up to FDA-recommended dose (+/- 5%) for the number doses requested every 28 days.</td>
</tr>
<tr>
<td>Major surgery: Up to 60 IU/kg within one hour before the operation to achieve 100 IU/dL then every 8 to 24 hours until adequate wound healing.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Afstyla[^2]</th>
<th>Prophylaxis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;12 years old: Up to 50 IU/kg 2 to 3 times per week.</td>
<td>• &gt;12 years old: Up to FDA-recommended dose (+/-5%) for a total of 12 doses per 28 days.</td>
</tr>
<tr>
<td>&lt;12 years old: Up to 50 IU/kg 2 to 3 times per week. More frequent or higher doses may be required in children &lt;12 years old to account for higher clearance in this population.</td>
<td>• &lt;12 years old: Up to FDA-recommended dose (+/-5%) for a total of 12 doses per 28 days.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On-demand:</th>
<th>Up to FDA-recommended dose (+/- 5%) for the number doses requested every 28 days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50 IU/kg every 8-24 hours until the bleeding is resolved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eloctate[^3]</th>
<th>Prophylaxis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;6 years old: Administer up to 65 IU/kg every 3 to 5 days.</td>
<td>• &gt;12 years old: Up to FDA-recommended dose (+/-5%) for a total of 9 doses per 28 days.</td>
</tr>
<tr>
<td>&lt;6 years old: Up to 65 IU/kg every 3 to 5 days. More frequent or higher doses (up to 80 IU/kg) may be required.</td>
<td>• &lt;12 years old: Up to FDA-recommended dose (+/-5%) for a total of 9 doses per 28 days.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On-demand:</th>
<th>Up to FDA-recommended dose (+/- 5%) for the number doses requested every 28 days.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50 IU/kg every 12 to 24 hours (every 8 to 24 hours in patients &lt;6 years old) until the bleeding is resolved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perioperative:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor surgery: up to 40 IU/kg every 24 hours (every 12 to 24 hours for patients &lt;6 years old) for at least 1 day until healing is achieved.</td>
<td></td>
</tr>
<tr>
<td>Major surgery: pre-operative up to 60 IU/kg followed by a repeat dose</td>
<td></td>
</tr>
</tbody>
</table>
of up to 50IU/kg after 8 to 24 hours (6 to 24 hours for patients <6 years old), then every 24 hours until adequate wound healing, then continue therapy for at least another 7 days.

| Jivi[^4] | Prophylaxis:  
| >12 years old: Administer Up to 40 IU/kg twice weekly.  
| <12 years old: Not approved for use in this age group.  

**On-demand:**  
Up to 50 IU/kg every 8 to 24 hours until the bleeding is resolved.

**Perioperative:**  
- Minor surgery: up to 30 IU/kg every 24 hours for at least 1 day until healing is achieved.  
- Major surgery: pre-operative up to 50 IU/kg every 12 to 24 hours until healing is achieved, then continue therapy for at least another 7 days.

| Esperoct[^5] | Prophylaxis:  
| >12 years old: Administer Up to 50 IU/kg every 4 days.  
| <12 years old: Administer Up to 65 IU/kg twice weekly.  

**On-demand:**  
- >12 years old: Up to 50 IU/kg every 24 hours until the bleeding is resolved  
- <12 years old: Up to 65 IU/kg every 24 hours until the bleeding is resolved

**Perioperative:**  
- Minor Surgery: up to 50 IU/kg (>12 years old) or up to 65 IU/kg (<12 years old) once, and then every 24 hours if necessary.  
- Major surgery: up to 50 IU/kg (>12 years old) or up to 65 IU/kg (<12 years old) every 24 hours for the first week, and then every 48 hours thereafter until wound healing.
# Appendix 1: Standard Half-life Factor VIII Concentrates for Hemophilia A

<table>
<thead>
<tr>
<th>Product</th>
<th>Recombinant or Plasma-Derived</th>
<th>FDA-recommended Prophylactic Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advate[6]</td>
<td>Recombinant</td>
<td>Up to 40 IU/kg every other day</td>
</tr>
</tbody>
</table>
| Kovaltry[7] | Recombinant                | >12 years old: Up to 40 IU/kg two to three times per week<br>
|           |                               | <12 years old: Up to 50 IU/kg every other day                           |
| NovoEight[8] | Recombinant                 | >12 years old: Up to 50 IU/kg every other day<br>
|           |                               | <12 years old: Up to 60 IU/kg every other day                           |
| Nuwiq[9]  | Recombinant                   | >12 years old: Up to 40 IU/kg every other day<br>
|           |                               | <12 years old: Up to 50 IU/kg every other day                           |
| Kogenate[11] | Recombinant              | Adults: Up to 25 IU/kg three times per week<br>
|           |                               | Children: Up to 25 IU/kg every other day                               |
| Helixate[13] | Recombinant                  | Adults: Up to 25 IU/kg three times per week<br>
|           |                               | Children: Up to 25 IU/kg every other day                               |
| Alphanate[16] | Plasma                   | See FDA label for specifics of maximizing dosing.                       |
| Humate-P[18] | Plasma                    | See FDA label for specifics of maximizing dosing.                       |

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Appendix 2: Clinical Reasons Standard Half-Life (SHL) Factor Products Are Not Appropriate

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacokinetic (PK) studies demonstrate an inability to maintain factor levels within the desired range with all recombinant SHL factor products, dosed at FDA-recommended doses</td>
</tr>
<tr>
<td>History of bleeds despite adherence to FDA recommended doses of all recombinant SHL factor products</td>
</tr>
<tr>
<td>Documented medical contraindications to all recombinant SHL factor products</td>
</tr>
</tbody>
</table>

Position Statement

Summary

- The medications covered by this policy (Adynovate, Afstyla, Eloctate, Jivi, and Esperoct) are extended half-life (EHL) blood factor VIII (FVIII) products used for the treatment of patients with hemophilia A. All are recombinant products.
- Hemophilia A is an X-linked congenital bleeding disorder caused by a deficiency of coagulation FVIII, part of the intrinsic coagulation pathway.[19]
- The intent of the policy is to allow for coverage of EHL FVIII products for patients with hemophilia A when standard-half life (SHL) FVIII products are ineffective or not a treatment option, as detailed in the coverage criteria, for up to the quantities in the coverage criteria.
- In addition, the intent of the policy is to ensure ongoing use of EHL FVIII is effective for reduction of bleeding and used in doses up to the coverable amount.
- Therapy should be individualized based on age, bleeding phenotype, weight, inhibitor status, history of bleeding episodes, and availability of factor concentrates. Patients with a suboptimal response to factor concentrates should be assessed for inhibitors.[19]
- The primary goal of factor replacement therapy is to prevent and treat bleeding. A reduction in bleeding events and subsequent sequelae demonstrate the efficacy of treatment.
- Patients who continue to have spontaneous clinically significant bleeds (such as target joint bleeds or other end-organ damage) or cannot maintain optimal factor levels despite adherence to adequate (FDA-recommended) doses of Standard Half-Life (SHL) factor products may see benefit from EHL FVIII products.
- There is no evidence that EHL FVIII product prophylactic regimens are safer or more effective than SHL FVIII product prophylactic regimens in terms of annualized bleed rates (ABR). However, EHL FVIII product prophylactic regimens are more costly than SHL FVIII product prophylactic regimens.
- Recombinant factor replacement products are the recommended treatment of choice for hemophilia A patients.[20] Plasma-derived (pd) SHL FVIII products are used less frequently for long-term treatment in hemophilia A, given the availability of many recombinant SHL FVIII product options and lower-risk for infection. However, use of
recombinant SHL FVIII products are considered safe and effective for management of hemophilia A and the standard of care first-line option for management. Therefore, EHL FVIII products are coverable only when recombinant SHL FVIII products are ineffective, or all are medically contraindicated. Inhibitor risk is greatest during the first 50 exposures to recombinant factor VIII products and greatly diminishes after 200 treatment days. At a minimum, inhibitor screening should be completed at baseline and yearly. Immune tolerance induction (ITI) should be started as soon as possible after a high titer FVIII inhibitors are identified (defined as greater than or equal to 5 Bethesda units.\cite{19,21} Higher dose FVIII concentrate products can be used (SHL or EHL) with high titer FVIII inhibitors, as well as emicizumab (Hemlibra), or bypassing agents such as rFVIIa (NovoSeven or SevenFact) or aPCC (FEIBA).

- The vast majority of published data regarding EHL FVIII products have been evaluated in previously treated patients (PTPs) with a minimum of 50 exposure days and no history of inhibitory antibodies. There is currently a lack of studies that demonstrate the safety and efficacy of EHL FVIII products in previously untreated patients (PUPs) and patients with less than 50 Exposure Days (EDs). In addition, patients with a history of inhibitors have been excluded from clinical research trials of EHL FVIII products.\cite{22}

- Pharmacokinetic (PK) dosing models can be used to individualize and improve response to therapy. Classic (“full individual”) PK studies are difficult to perform due to the high number of blood samples required. Population-based PK models use data from manufacturers and hemophilia treatment centers, are easy to perform, and useful to determine FVIII product dose and require much fewer samples than classic PK studies.\cite{23} PK studies are required at the first (initial) reauthorization period, to assess for over- or under-dosing of EHL FVIII product.

Clinical Efficacy

Hemophilia A

- The safety and efficacy of Adynovate, Eloctate, Afstyla, Jivi, and Esperoct in hemophilia A were established based on one to two open-label, non-randomized trials in each. All were effective for reduction in annualized bleeding rate (ABR) when used prophylactically versus on-demand treatment.

- At this time, there is insufficient evidence to establish EHL FVIII products have a lower risk of inhibitor development as compared to other treatment options, such as SHL FVIII products. Eloctate was evaluated in clinical trials for inhibitor development. No patients developed inhibitors during either trial. However, there are cases of inhibitor formation, including in previously untreated patients, in clinical practice.

- All FVIII products (SHL and EHL) are effective for achieving hemostasis based on significant clinical experience. There are no head-to-head trials of EHL FVIII products versus SHL FVIII products to establish superior efficacy or safety.

- Both SHL and EHL factor VIII products are given via IV infusion. For patients unable to self-administer factor VIII, SHL FVIII may be given in the clinic setting or via home infusion services.

- In patients requiring surgery/invasive procedures, factor VIII repletion may be indicated peri-operatively. However, there is no evidence that EHL is superior to SHL factor VIII options for use in this setting.
Clinical Guidelines/Standard of Care Treatment

- Factor replacement products are effective for the prevention and control of bleeding versus no treatment based on years of significant clinical experience, systematic reviews, and are endorsed by clinical practice guidelines.

- A definitive diagnosis of hemophilia A depends on an assay that demonstrates a deficiency in Factor VIII levels. [19]
  - Mild Hemophilia A: 5-40 IU/dL
  - Moderate Hemophilia A: 1-5 IU/dL
  - Severe Hemophilia A: <1 IU/dL

- Prophylaxis is recommended as the optimal treatment modality for individuals with severe hemophilia by the National Hemophilia Foundation. The concept was conceived from the observation that moderate hemophiliacs (clotting factor level >1 IU/dL) seldom experience spontaneous bleeding and have much better preservation of joint function.[19]

- The two generalized prophylactic protocols currently in use with long-term data are the Malmö and the Utrecht protocols. These protocols should be individualized for each patient. [19]
  - Malmö protocol: 25-40 IU/kg per dose administered three times a week.
  - Utrecht protocol: 15-30 IU/kg per dose administered three times a week.

- Specific factor replacement products may recommend different dosing based on clinical trial experience.

- There is insufficient evidence that any factor product is superior to another due to a lack of comparative trial data.

- According to the Medical and Scientific Advisory Council (MASAC), the rate of inhibitors observed in PUPs in unacceptably high, and clinical trials are needed to direct clinical practice and reduce inhibitor formation. There is currently a lack of studies that demonstrate the safety and efficacy of EHL FVIII products in previously untreated patients (PUPs). Up to 30% of PUPs treated with FVIII products develop inhibitors.[24]

- Historically, patients with a history of inhibitors have been excluded from clinical research trials of EHL FVIII products.[22]

- The number of doses to reduce or manage bleeds and the dosage required varies greatly between patients. Dosage is dependent upon the level of severity, the presence of an inhibitor, prescribed regimen (on-demand, prophylaxis, perioperative), the number of bleeding episodes, individual pharmacokinetics, the products utilized, and the level of physical activity.[19]

- There is significant inter-patient pharmacokinetic variability after standard doses of FVIII. Using weight-based dosing may result in overdosing or underdosing of FVIII concentrate. The use of pharmacokinetic data facilitates individualization of FVIII dosing and may decrease the time patients are below the desired trough level (<1 IU/dL). Pharmacokinetic dosing models may lead to a reduction in treatment costs and better targeting of FVIII levels.[25]

- The pricing strategy for EHL FVIII products is based on the theory that use of EHL FVIII products reduces FVIII usage; and therefore, the cost will be similar to SHL FVIII products.[22] However, a small retrospective study of hemophilia A patients switching from SHL to EHL FVIII products showed an increase in factor usage by 33% in the 6
months immediately following the transition. This was also associated by large increase in cost (2.36 times higher), without any proven clinical outcomes, such as a reduction in bleeding events, associated with the change.[26]

Safety
- The most common adverse reactions reported with EHL FVIII products (Adynovate, Afstyla, Eloctate Jivi, and Esperoct) during trials included arthralgia, upper respiratory tract infection, cough, headache and injection site reactions.
- In clinical trials, use of Jivi was associated with a higher risk of hypersensitivity reactions in patients <12 years old, and therefore it is not indicated in this population.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J7210</td>
<td>Injection, factor VIII, (antihemophilic factor, recombinant) (Afstyla), 1 IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7205</td>
<td>Injection, factor VIII Fc fusion protein (recombinant) (Eloctate), per IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7207</td>
<td>Injection, factor viii, (antihemophilic factor, recombinant), pegylated (Adynovate), 1 IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7208</td>
<td>Injection, factor viii, (antihemophilic factor, recombinant), pegylated-aucl (Jivi), 1 IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7204</td>
<td>Injection, factor viii, antihemophilic factor (recombinant) glycopegylated-exei (Esperoct), per IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7199</td>
<td>Hemophilia clotting factor, not otherwise classified</td>
</tr>
<tr>
<td>ICD-10</td>
<td>D66</td>
<td>Hereditary Factor VIII Deficiency</td>
</tr>
</tbody>
</table>

Cross References
Hemlibra, emicizumab-kxwh, Medication Policy Manual, Policy No. dru539
References

1. Adynovate [Prescribing Information]. Westlake Village, CA: Shire; March 2017
2. Afstyla [Prescribing Information]. Kankakee, IL: CSL Behring; September 2017
3. Eloctate [Prescribing Information]. Waltham, MA: Bioverativ Therapeutics; December 2017
4. Jivi [Prescribing Information]. Whippany, NJ: Bayer; August 2018
8. NovoEight [prescribing information]. Plainsboro, NJ: Novo Nordisk; May 2018
12. Recombinate [prescribing information]. Westlake Village, CA: Shire; March 217
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15. Monoclate-P [prescribing information]. Kankakee, IL: CSL Behring; February 2014
16. Alphanate [prescribing information]. Los Angeles, CA: Grifols; March 2017
17. Koate-DVI [prescribing information]. Los Angeles, CA: Grifols; August 2012
18. Humate-P [prescribing information]. Kankakee, IL: CSL Behring; September 2017
24. MASAC. MASAC Recommendation on SIPPET (Survey of Inhibitors in Plasmaproduct-Exposed Toddlers): Results and Recommendations for Treatment Products for Previously Untreated Patients with Hemophilia A. In: Foundation NH, editor.: National Hemophilia Foundation; 2016.
### Revision History

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<td>6/17/2022</td>
<td>No changes to coverage criteria with this annual update.</td>
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| 1/20/2021     | • Updated COT language, no change to intent.  
• Removed requirements for inhibitor evaluation.  
• Made operational improvements to step therapy requirement language.  
• Updated QL language for operational efficiency.  
• Extended auth period from 24 weeks to one year.  
• Simplified reauthorization requirements. |
| 10/28/2020    | Minor formatting fixes, no changes to policy intent. |
| 7/22/2020     | Added continuation of therapy (COT) criteria. No other changes with this annual update. |
| 10/23/2019    | • Effective 1/1/2020:  
• Added Esperoct, a newly-approved EHL FVIII product, to this policy.  
• Clarification of coverage criteria, for simplification and consistency of administration, including documentation needed for FVIII inhibitor status and addition of a definition of “ineffectiveness to standard half-life factor VIII” (no change to intent of coverage criteria).  
• Updated administration requirements to reflect coverage on either the pharmacy or medical benefit as dictated by group and member specific contract decisions.  
• Clarification of reauthorization criteria, to include documentation of efficacy and compliance with dosing regimen and clarification of requirements for approval of higher factor doses products. |
| 4/25/2019     | No changes to coverage criteria with this annual update. |
| 11/16/2018    | Added of Jivi, a newly-approved EHL product, to this policy (effective 1/1/2019). |
| 8/17/2018     | New policy, effective 1/1/2019 |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Blood Factors for Hemophilia B, extended-half-life (EHL) products

- Alprolix, coagulation factor IX (recombinant), Fc fusion protein
- Idelvion, coagulation factor IX (recombinant), albumin fusion protein
- Rebinyn, coagulation factor IX (recombinant), GlycoPEGylated

Committee Approval Date: June 17, 2022
Effective Date: September 1, 2022

Policy No: dru550
Date of Origin: January 1, 2019
Next Review Date: June 2023

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Alprolix, Idelvion, Rebinyn are extended half-life (EHL) factor IX (FIX) replacement products for hemophilia B. They are covered when standard-half life (SHL) FIX products at the optimal dose are ineffective or not a treatment option. These products are used “on-demand” for control of bleeding episodes or for perioperative management of bleeding. In addition, Alprolix and Idelvion are indicated for routine prophylaxis to reduce the frequency of bleeding episodes.
Policy/Criteria

Most contracts require pre-authorization of extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) prior to coverage.

I. Continuation of therapy (COT): Extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) may be considered medically necessary for COT when criterion A or B below is met.

A. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

OR

B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met:

A. A diagnosis of hemophilia B established by or in consultation with a hematologist.

AND

B. Standard half-life (SHL) blood factor FIX (SHL FIX) products are not a treatment option, as defined by meeting one of the following (criterion 1 or 2 below):

1. SHL FIX products have been ineffective as defined by criteria a and b below:
   a. The patient has used SHL FIX products for at least 50 days (also referred to as “exposure days”).

   AND

   b. The patient has continued to have documented (e.g. bleed diary or detailed provider notes) clinically significant bleeding events (such as target joint bleeds or other end-organ damage) despite adherent use of SHL FIX products (dose and dose frequency, as listed in Appendix 1).

OR

2. There is a documented objective clinical reason that all available SHL FIX products are not appropriate (as listed in Appendix 2).
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) to be either self-administered medications or provider-administered medications. Determination of coverage under the pharmacy benefit or medical benefit is based on group-specific benefits, as defined in the group and member contract.

B. Quantity Limits

1. Extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) may be authorized up to FDA-recommended dose and frequency limits (Table 1).

2. Escalated dosing (quantities above FDA-recommended dose and frequency limits) may be covered when criteria a and b below are met:
   a. There is documentation that the FDA-recommended dose is ineffective (clinically significant bleeding events such as target joint bleeds or other end-organ damage while adherent to therapy).

   AND

   b. Attestation that the escalated dosing is supported by a full or population-based pharmacokinetic (PK) studies.

C. Authorization Periods

1. Extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) will be authorized for up to one year.

2. Authorization shall be reviewed at least annually to confirm that the medication continues to be effective.

IV. The use of extended half-life (EHL) blood factor products for hemophilia B (FIX EHL factor) for all other conditions not specified above is considered investigational.
<table>
<thead>
<tr>
<th>FDA-recommended Dosing</th>
<th>Maximum Doses (per 28 to 30 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alprolix[^1]</strong></td>
<td><strong>Prophylaxis:</strong></td>
</tr>
<tr>
<td></td>
<td>&gt;12 years old: Up to 50 IU/kg once weekly or 100 IU/kg once every 10 days.</td>
</tr>
<tr>
<td></td>
<td>&lt;12 years old: Up to 60 IU/kg once weekly. Although more frequent or higher doses may be required based on individual response.</td>
</tr>
<tr>
<td></td>
<td>On-demand: Up to 100 IU/kg for the first dose then again every 6 to 10 hours for one additional dose. Dosing is then every 24 hours for 3 days, then every 48 hours until the healing is achieved.</td>
</tr>
<tr>
<td></td>
<td>Perioperative: Minor surgery: Up to 80 IU/kg as a single infusion, then every 24 to 48 hours if needed until bleeding stops (not to exceed one additional dose per 24 hours). Major surgery: Up to 100 IU/kg as the initial dose, then repeat dose after 6-10 hours and then every 24 hours for the first 3 days. After day 3, the dosing may be extended to every 48 hours until healing is achieved.</td>
</tr>
<tr>
<td><strong>Idelvion[^2]</strong></td>
<td><strong>Prophylaxis:</strong></td>
</tr>
<tr>
<td></td>
<td>&gt;12 years old: Up to 40 IU/kg once weekly. Patients who are well controlled on this regimen may be changed to 50-75 IU/kg every 14 days.</td>
</tr>
<tr>
<td></td>
<td>&lt;12 years old: Up to 55 IU/kg body weight every 7 days.</td>
</tr>
<tr>
<td></td>
<td>On-demand: Up to 100 IU/kg every 48-72 hours for 7-14 days until bleeding stops (not to exceed one additional dose per 48 hours).</td>
</tr>
<tr>
<td></td>
<td>Perioperative: Minor surgery: Up to 80 IU/kg for at least 1 day, then every 48-72 hours until healing is achieved (not to exceed one additional dose per 48 hours). Major surgery: Up to 100 IU/kg as the initial level then every 48-72 hours for 7-14 days until healing is achieved (not to exceed one additional dose per 48 hours, up to 7 doses per 14 days).</td>
</tr>
</tbody>
</table>

[^1]: These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
On-demand:
Up to 80 IU/kg for the initial dose, after which additional doses of 40 IU/kg can be given until bleeding stops.

Perioperative:
- Minor surgery: Up to 40 IU/kg as a single pre-operative dose. One additional dose may be given if needed.
- Major surgery: Up to 80 IU/kg pre-operatively and as clinically needed for the perioperative management of bleeding, repeated doses of 40 IU/kg (in 1-3 day intervals) within the first week after major surgery may be administered (not to exceed one additional dose per 24 hours, up to 7 doses per 7 days).

On-demand:
Up to FDA-labeled dosing (+/-5%) for the number of doses requested every 28 days.

Perioperative:
Up to FDA-labeled dosing (+/-5%) for the number of doses requested every 28 days.

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### Appendix 1: Standard Half-life Factor IX Concentrates for Hemophilia B

<table>
<thead>
<tr>
<th>Recombinant</th>
<th>Recombinant or Plasma-Derived</th>
<th>FDA-recommended Prophylactic Dosing</th>
</tr>
</thead>
<tbody>
<tr>
<td>BeneFIX[4]</td>
<td>Recombinant</td>
<td>Specific prophylactic dosing not mentioned in FDA label</td>
</tr>
<tr>
<td>Ixinity[5]</td>
<td>Recombinant</td>
<td>Specific prophylactic dosing not mentioned in FDA label</td>
</tr>
<tr>
<td>Rixubis[6]</td>
<td>Recombinant</td>
<td>&gt;12 years: Up to 60 IU/kg twice weekly &lt;12 years: Up to 80IU/kg twice weekly</td>
</tr>
<tr>
<td>AlphaNine SD[7]</td>
<td>Plasma</td>
<td>Specific prophylactic dosing not mentioned in FDA label</td>
</tr>
<tr>
<td>Bebulin[8]</td>
<td>Plasma</td>
<td>Specific prophylactic dosing not mentioned in FDA label</td>
</tr>
<tr>
<td>Mononine[9]</td>
<td>Plasma</td>
<td>Up to 30 IU/kg, the frequency of administration will vary with each patient</td>
</tr>
<tr>
<td>Profilnine[10]</td>
<td>Plasma</td>
<td>Specific prophylactic dosing not mentioned in FDA label</td>
</tr>
</tbody>
</table>
### Appendix 2: Clinical Reasons SHL Factor Products Are Not Appropriate

<table>
<thead>
<tr>
<th>Pharmocokinetic (PK) studies demonstrate an inability to maintain factor levels within the desired range with all recombinant SHL factor concentrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of bleeds despite adherence to a maximum recommended dose of all recombinant SHL factor concentrates</td>
</tr>
<tr>
<td>Contraindications to all recombinant SHL factor concentrates</td>
</tr>
</tbody>
</table>

## Position Statement

**Summary**

- Alprolix, Idelvion, and Rebinyn are extended half-life (EHL) blood factor IX (FIX) products used for the treatment of patients with hemophilia B. All are recombinant products.
- Hemophilia B is an X-linked congenital bleeding disorder caused by a deficiency of coagulation FIX, part of the intrinsic coagulation pathway.\(^{[11]}\)
- The intent of the policy is to allow for coverage of EHL FIX products for patients with hemophilia B when standard-half life (SHL) FIX products are ineffective or not a treatment option, as detailed in the coverage criteria, for up to the quantities in the coverage criteria.
- In addition, the intent of the policy is to ensure ongoing use of EHL FIX is effective for reduction of bleeding and used in doses up to the coverable amount.
- Therapy should be individualized based on age, bleeding phenotype, weight, inhibitor status, history of bleeding episodes, and availability of factor concentrates. Patients with a suboptimal response to factor concentrates should be assessed for inhibitors.\(^{[11]}\)
- The primary goal of factor replacement therapy is to prevent and treat bleeding. A reduction in bleeding events and subsequent sequelae demonstrate the efficacy of treatment.
- Patients who continue to have spontaneous clinically significant bleeds (such as target joint bleeds or other end-organ damage) or cannot maintain optimal factor levels despite adherence to adequate (FDA-recommended) doses of Standard Half-Life (SHL) factor products may see benefit from EHL FIX products.
- There is no evidence that EHL FIX product prophylactic regimens are safer or more effective than SHL FIX product prophylactic regimens in terms of annualized bleed rates (ABR). However, EHL FIX product prophylactic regimens are more costly than SHL FIX product prophylactic regimens.
- Inhibitors are seen less frequently in Hemophilia B than in Hemophilia A, with frequency of occurrence <5%. Inhibitor risk is greatest during the first 50 exposures to recombinant factor IX and greatly diminishes after 200 treatment days.\(^{[11]}\)
- In Hemophilia B patients who develop inhibitors, up to 50% may have a severe allergic reaction to FIX administration.
- The vast majority of published data regarding EHL FIX products have been evaluated in previously treated patients (PTPs) with a minimum of 50 exposure days and no history of inhibitory antibodies. There is currently a lack of studies that demonstrate the safety
and efficacy of EHL FIX products in previously untreated patients (PUPs) and patients with less than 50 EDs. In addition, patients with a history of inhibitors have been excluded from clinical research trials of EHL FIX products.\footnote{12}

- Recombinant factor IX products are considered the treatment of choice for Hemophilia B.\footnote{13} Use of SHL FIX products are considered safe and effective for management of hemophilia B and the standard of care first-line option for management. Therefore, EHL FIX products are coverable only when recombinant SHL FIX products are ineffective, or are medically contraindicated.

- Pharmacokinetic (PK) dosing models can be used to individualize therapy and improve response to therapy. Classic (“full individual”) PK studies are difficult to perform due to the high number of blood samples required. Population-based PK models use data from manufacturers and hemophilia treatment centers, as easy to perform, and useful to determine FIX product dose and require much fewer samples than classic PK studies.\footnote{14} PK studies are required at the first (initial) reauthorization period, to assess for over- or under-dosing of EHL FIX product.

Clinical Efficacy\footnote{1-3}

Hemophilia B

- The safety and efficacy of Alprolix, Idelvion, and Rebinyn in hemophilia B were established based on one to four open-label, non-randomized trials in each. Alprolix and Idelvion were effective for reduction in annualized bleeding rate (ABR) when used prophylactically versus on-demand treatment. Rebinyn demonstrated efficacy in stopping or preventing bleeding in the on-demand and perioperative settings.

- At this time, there is insufficient evidence to establish EHL blood factor products have a lower risk of inhibitor development. No patients developed inhibitors during clinical trials. However, there are cases of inhibitor formation, including in previously untreated patients, in clinical practice.

- All factor IX replacement products are effective for achieving hemostasis based on significant clinical experience. There are no head-to-head trials of EHL blood factor products versus SHL blood factor products to establish superior efficacy or safety.

- Both SHL and EHL factor IX products are given via IV infusion. For patients unable to self-administer factor IX, SHL FIX may be given in the clinic setting or via home infusion services.

- In patients requiring surgery/invasive procedures, factor IX repletion may be indicated in the perioperative setting. However, there is no evidence that EHL is superior to SHL factor IX options for use perioperatively.

Clinical Guidelines/Standard of Care Treatment

- Factor replacement products are effective for the prevention and control of bleeding versus no treatment based on years of significant clinical experience, systematic reviews, and are endorsed by clinical practice guidelines.

- A definitive diagnosis of hemophilia B depends on an assay that demonstrates a deficiency in Factor IX levels.\footnote{11}

  * Mild Hemophilia B: 5-40 IU/dL.
* Moderate Hemophilia B: 1-5 IU/dL.
* Severe Hemophilia B: <1 IU/dL.

- Prophylaxis is recommended as the optimal treatment modality for individuals with severe hemophilia by the National Hemophilia Foundation. The concept was conceived from the observation that moderate hemophiliacs (clotting factor level >1 IU/dL) seldom experience spontaneous bleeding and have much better preservation of joint function.[11]

- The two generalized prophylactic protocols currently in use with long-term data are the Malmö and the Utrecht protocols. These protocols should be individualized for each patient. [11]
  * Malmö protocol: 25-40 IU/kg per dose administered two times a week.
  * Utrecht protocol: 15-30 IU/kg per dose administered two times a week.

- Specific factor replacement products may recommend different dosing based on clinical trial experience.
- There is insufficient evidence that any factor concentrate is superior to another due to a lack of comparative trial data.
- According to the Medical and Scientific Advisory Council (MASAC), the rate of inhibitors observed in PUPs in unacceptably high, and clinical trials are needed to direct clinical practice and reduce inhibitor formation. There is currently a lack of studies that demonstrate the safety and efficacy of EHL factor products in previously untreated patients (PUPs). [15]
- Historically, patients with a history of inhibitors have been excluded from clinical research trials of EHL factor products.[12]
- Unless clinically suspected, inhibitor testing in patients with hemophilia B is not necessary after 150 EDs to a specific factor replacement product.[11]
- The number of doses to reduce or manage bleeds and the dosage required varies greatly between patients. Dosage is dependent upon the level of severity, the presence of an inhibitor, prescribed regimen (on-demand, prophylaxis, perioperative), the number of bleeding episodes, individual pharmacokinetics, the products utilized, and the level of physical activity.[11]
- There is significant inter-patient pharmacokinetic variability after standard doses of FIX and using weight-based dosing may result in overdosing or underdosing of FIX concentrate. The use of pharmacokinetic data facilitates individualization of FIX dosing and may decrease the time patients are below the desired trough level (<1 IU/dL). Pharmacokinetic dosing models may lead to a reduction in treatment costs and better targeting of FIX levels.[14]
- A small retrospective study of hemophilia B patients switching from SHL to EHL factor concentrates showed a decrease in factor usage by 18% in the 6 months immediately following the transition. Although, this was associated by large increase in cost (1.97 times higher), without any proven clinical outcomes, such as a reduction in bleeding events, associated with the change. [16]

* Safety[1-3]
- The most common adverse reactions reported with EHL FIX products during trials included headache and injection site reactions.
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<tr>
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<td>Injection, factor ix, fc fusion protein, (recombinant) (Alprolix), per IU</td>
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<td>J7202</td>
<td>Injection, factor ix, albumin fusion protein, (recombinant) (Idelvion), 1 IU</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J7203</td>
<td>Injection, factor ix, (antihemophilic factor, recombinant), glycopegylated (Rebinyn), 1 IU</td>
</tr>
<tr>
<td>ICD-10</td>
<td>D6</td>
<td>Hereditary Factor IX Deficiency</td>
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3. Rebinyn [prescribing information]. Plainsboro, NJ: Novo Nordisk; May 2017
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| 10/23/2019    | Effective 1/1/2020:  
                - Clarification of coverage criteria, for simplification and consistency of administration, including documentation needed for FIX inhibitor status and addition of a definition of “ineffectiveness to standard half-life factor FIX” (no change to intent of coverage criteria).  
                - Updated administration requirements to reflect coverage on either the pharmacy or medical benefit as dictated by group and member specific contract decisions.  
                - Clarification of reauthorization criteria, to include documentation of efficacy and compliance with dosing regimen and clarification of requirements for approval of higher factor doses products. |
| 4/25/2019     | No criteria changes with this annual update. |
| 8/17/2018     | New policy, effective 1/1/2019 |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru551  
**Date of Origin:** October 1, 2018

**Topic:** Medications for Phenylketonuria (PKU)  
- Kuvan®, sapropterin  
- Palynziq®, pegvaliase-pqpz

**Committee Approval Date:** August 17, 2018  
**Next Review Date:** August 2019  
**Effective Date:** October 1, 2018

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Sapropterin (Kuvan) and pegvaliase (Palynziq) are medications used to decrease blood phenylalanine levels in patients with Phenylketonuria (PKU). Sapropterin (Kuvan) is orally administered and used in conjunction with a phenylalanine (Phe) restricted diet to reduce blood phenylalanine levels. Pegvaliase (Palynziq) is administered subcutaneously and coverable in patients with blood Phe levels greater than 600µmol/dL on existing management.
Policy/Criteria

I. Most contracts require pre-authorization approval of medications for Phenylketonuria prior to coverage.

A. **Sapropterin (Kuvan)** may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) showing that ALL criteria (1, 2 and 3) below are met.
   1. A diagnosis of phenylketonuria (PKU) has been established by a metabolic specialist.
   AND
   2. Phenylalanine (Phe) levels cannot be maintained within the recommended maintenance range [120-360 µmol/dL (2 – 6 mg/dL)] with dietary intervention alone.
   AND
   3. Documentation of an elevated average baseline blood Phe level ≥ 360 µmol/L, prior to initiating therapy with sapropterin (Kuvan) and a current body weight.

B. **Pegvaliase (Palynziq)** may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) showing that ALL criteria (1, 2, and 3) below are met.
   1. A diagnosis of phenylketonuria (PKU) has been established by a metabolic specialist.
   AND
   2. Documentation of an elevated average baseline blood Phe level ≥ 600 µmol/L over the last 6 months prior to starting pegvaliase (Palynziq).
   AND
   3. Treatment with sapropterin (Kuvan) has been ineffective, not tolerated, or is contraindicated. Ineffectiveness is defined as a decrease in blood Phe levels of less than 30% from baseline after one month of treatment.

II. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers sapropterin (Kuvan) and pegvaliase (Palynziq) to be self-administered medications.

B. **Initial Authorization:** When prior authorization is approved, medications for PKU may be initially covered in quantities as follows:

   **Kuvan**
   1. Up to 10 mg/kg/day for up to two months.
   2. Up to 20 mg/kg/day for up to two months, when there is clinical documentation that current treatment with sapropterin (Kuvan) 10 mg/kg/day is not effective after at least 8 days of sapropterin (Kuvan) treatment, defined as less than a 30% decrease in blood Phe level from baseline (the Phe level provided in criterion I.A.3. above).
NOTE: Number of tablets (or powder packets for solution) authorized per month will be rounded to the nearest 100 mg. Doses exceeding 20 mg/kg/day are considered investigational.

**Palynziq**
1. Up to 20 mg/day for up to six months
2. Up to 40 mg/day when there is clinical documentation that current treatment with pegvaliase (Palynziq) 20 mg/day is not effective after at least 24 weeks of pegvaliase (Palynziq) treatment, defined as less than a 20% decrease in blood Phe level from baseline (the Phe level provided in criterion I.B.1 above).

**C. Continued Authorization:** Authorization for medications for PKU shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met and that the medication is providing clinical benefit, with confirmation of ALL of the following:

**Kuvan**
1. The blood Phe level has decreased at least 30% from baseline (the Phe level provided in criterion I.A.3 above).

AND
2. The patient remains compliant with a phenylalanine-restricted diet, based on clinical documentation.

AND
3. The dose of sapropterin (Kuvan) does not exceed 20 mg/kg/day, based on the patient’s recent weight (within the last 90 days). All doses will be rounded to the nearest 100 mg.

**Palynziq**
1. The blood Phe level has decreased from baseline (Phe level provided in criterion I.B.1. above)

AND
2. For patients on Palynziq 40 mg for 16 weeks: The blood Phe level has decreased at least 20% from baseline (the Phe level provided in criterion I.B.1. above)

**III. Medications for PKU** are considered investigational when used:

**A.** For any condition other than phenylketonuria, including, but not limited to autism and cirrhosis with portal hypertension.

**B.** In combination [concomitant use of sapropterin (Kuvan) and pegvaliase (Palynziq)].
Position Statement

- The current standard of care for patients with PKU is adherence to a Phe-restricted diet.
- Sapropterin (Kuvan) is approved for the reduction of blood phenylalanine (Phe) levels in patients with high Phe levels (hyperphenylalaninemia) due to tetrahydrobiopterin (BH4)-responsive phenylketonuria (PKU), despite dietary intervention. Sapropterin (Kuvan) is to be used in conjunction with a Phe-restricted diet.
- Pegvaliase (Palynziq) is approved to reduce blood phenylalanine (Phe) levels in adults with PKU that have blood Phe levels above 600 µmol/L on existing management. It is the first PKU drug approved that does not require the adherence of a Phe-restricted diet.
- There is no data that demonstrates that either medication for PKU is more effective than the other in the treatment of PKU.
- Untreated PKU is associated with severe mental retardation, reduced IQ scores, behavioral difficulties and other symptoms. However, there is no consensus concerning the optimal blood Phe level. In addition, the blood Phe concentration associated with optimal central nervous system outcomes is uncertain.
- Although there is evidence that sapropterin (Kuvan) and pegvaliase (Palynziq) lower blood Phe levels in patients with PKU, the long-term impact on neurological development and clinically relevant outcomes is unknown. There is no evidence to indicate that sapropterin (Kuvan) or pegvaliase (Palynziq) improve long-term patient outcomes.
- There is no evidence to indicate that sapropterin (Kuvan) or pegvaliase (Palynziq) are safe or effective when used in combination for treatment of PKU.
- In clinical trials, patients were considered responders to sapropterin (Kuvan) if blood Phe levels decreased at least 30% from baseline. A response was seen as early as eight days after initiating treatment. If blood Phe levels do not decrease after one month of treatment (“non-responders”), treatment with sapropterin (Kuvan) should be discontinued.
- In clinical trials, patients were considered responders to pegvaliase (Palynziq) if blood Phe levels decreased at least 20% from baseline. If blood Phe levels do not decrease after injecting 40mg daily for 16 weeks, treatment with pegvaliase (Palynziq) should be discontinued.
- The recommended starting dose of sapropterin (Kuvan) is 10 mg/kg/day taken once daily. For patients who do not respond, the dose can be increased to 20 mg/kg/day. The efficacy and safety of higher doses has not been established.
- The recommended dose of pegvaliase (Palynziq) is 20 mg subcutaneously once daily. For patients who do not respond after 24 weeks of therapy, the dose can be increased to 40 mg subcutaneously once daily. The efficacy and safety of higher doses has not been established.
- Sapropterin (Kuvan) has an established safety profile in the treatment of PKU. Due to the risk of anaphylaxis, pegvaliase (Palynziq) has a REMS program.
Clinical Efficacy

- **Sapropterin (Kuvan)** The efficacy of sapropterin (Kuvan) was established based on five clinical trials: one open-label trial with a follow-on randomized controlled trial and open-label extension trial, as well as two additional Phase 3 trials.[1-5]
  - Sapropterin (Kuvan) was dosed at 10 to 20 mg/kg/day.
  - The study duration ranged from eight days to 22 weeks.
  - The primary efficacy endpoint was the change in blood Phe concentration from baseline.
  - “Responders” were defined as patients who achieved at least a 30% decrease in blood Phe levels with sapropterin (Kuvan) treatment.

- Based on the clinical trial evidence, two high quality systematic reviews concluded treatment with sapropterin (Kuvan) decreases Phe blood levels.[6,7]
  - One systematic review found Phe levels were reduced by at least 30% in up to half of sapropterin (Kuvan) treated patients (32 to 50%).[7]
  - The other systematic review found a decrease in Phe levels versus baseline in sapropterin (Kuvan) treated patients. The average reduction in those on a Phe-restricted diet was a non-statistically significant change of -51.90 µmol/L. The average reduction in those on a relaxed or abandoned Phe-restricted diet, was a statistically significant change of -238.80 µmol/L.[6]
  - PKU treatment aims to maintain blood Phe levels within recommended ranges (120-360 µmol/L), to prevent neurologic damage; however, the blood Phe concentration associated with optimal neurodevelopmental outcome is uncertain.[6,8,9]
  - There are no studies comparing the use of sapropterin (Kuvan) to a Phe-restricted diet.

- There is insufficient data to make a conclusion regarding the impact of sapropterin (Kuvan) for improving clinically meaningful outcomes such as executive function (i.e. cognition).[6,7]
  - One small case series, sited within a systematic review, reported on intelligence quotient (IQ) and nutritional outcomes. After 1 year on sapropterin (Kuvan) 5mg/kg/day, the 11 participants discontinued use of a medical food and began a normal diet. IQ scores after 12 months on sapropterin (Kuvan) were similar to scores before treatment and development quotients were within normal limits.[7]

- There are no studies which evaluate sapropterin (Kuvan) treatment for quality-of-life outcomes.[6,7]

- There is insufficient data to make a conclusion regarding the impact of sapropterin (Kuvan) in the treatment of severe PKU.[6]

- Given the variability of genetic deficiency found with hyperphenylalaninemia, patients whose blood Phe does not decrease after 1 month despite the maximum sapropterin (Kuvan) daily dose of 20 mg/kg/day are “non-responders,” and treatment with sapropterin (Kuvan) should be discontinued in these patients.[5]
Pegvaliase (Palynziq)

- The safety and efficacy of pegvaliase (Palynziq) was established based off 2 low confidence, phase 3, randomized, multicenter trials (PRISM-1, PRISM-2). They were conducted in patients with PKU and baseline blood Phe levels ≥600mol/L and showed a large reduction in blood Phe compared to baseline at all time points.[10,11]
  - Use of pegvaliase (Palynziq) was associated with a reduction in cognitive and mood assessment scores from baseline while receiving treatment.
  - Treatment with pegvaliase was not compared to the standard of care, a Phe-restricted diet, or against the only other approved PKU treatment, sapropterin (Kuvan). Thus, the magnitude of benefit compared to prior therapies is unknown.
  - There are no studies of pegvaliase (Palynziq) when used in combination with sapropterin (Kuvan).

Treatment Guidelines/Standard of Care

- To achieve metabolic control, PKU guidelines recommend a life-long Phe-restricted diet, including medical foods and low-protein products, as the standard of care for PKU. [9,12]
- The primary goal of therapy is to lower blood Phe and improve psychosocial and neurocognitive function. Any interventions, including dietary restrictions, medical foods, or pharmacotherapy that helps achieve that goal without other negative consequences, should be considered appropriate therapy. Patient response to each intervention is variable and choice of treatment should be individualized. [9]
- Two systematic reviews evaluated the overall treatment of patients with PKU. [6,7]
  - The mainstay of PKU treatment is a Phe-restricted diet, ideally continued into adult life, with regular monitoring of blood Phe levels. Patients often require dietary supplements in the form of medical foods containing low-Phe protein sources.
  - Non-compliance to the restricted diet in teenagers and adults show subtle cognitive impairments relative to controls and is associated with an increase in the rate of eczema, asthma, mental disorders, headache, hyperactivity, and hypoactivity.
  - There are no definitive studies on the effects of dietary treatment in adults, but individual case reports have documented deterioration of adult PKU patients after diet discontinuation.
  - In addition, there is a lack of information on how much improvement might be expected on Phe levels with such a diet.
  - Treatment guidelines have not been updated since the approval of pegvaliase (Palynziq).

Investigational Uses

- Sapropterin (Kuvan) did not improve hepatic venous pressure gradient in subjects with cirrhosis and portal hypertension.[13]
- Sapropterin (Kuvan) did not improve Clinical Global Impressions Improvement (CGI-I) or Severity (CGI-S) in patients with autism spectrum disorders.[14]
Safety\cite{5,15}

**Kuvan**
- The most common side effects observed in clinical trials include headache, upper respiratory infection, rhinorrhea, pharyngolaryngeal pain, diarrhea, nausea and vomiting.
- Children less than 7 years of age should be started on lower doses of sapropterin (Kuvan) of 10 mg/kg/day to prevent abnormally low blood Phe levels. Doses may be titrated to 20 mg/kg/day, as needed, for blood Phe level reduction.

**Pegvaliase (Palynziq)**
- Adverse events in the clinical trials included injection site reactions, arthralgia, hypersensitivity reactions, headache, pruritus, nausea, abdominal pain, cough, diarrhea, and fatigue.
- Immunogenicity concerns exist, and elevations in various IgM and IgG levels were noted during the trials.
- Due to the risk of anaphylaxis, pegvaliase is only available through a restricted distribution program as part of a REMS requirement. During clinical trials, 9% of patients experienced an anaphylactic event.

**References**


8. OA, B. Overview of Phenylketonuria. UpToDate, Waltham, MA, 2014.


15. Palynziq® [Prescribing Information]. Novato, CA: BioMarin Pharmaceutical Inc; May 2018

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>ICD-10</td>
<td>E70.0</td>
<td>Phenylketonuria</td>
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### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>07/16/2018</td>
<td>New policy incorporating Kuvan policy (effective date 10/1/2018).</td>
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</table>
Medication Policy Manual

Policy No: dru563

Topic: Non-preferred pegfilgrastim products

- Neulasta, pegfilgrastim
- Neulasta Onpro, pegfilgrastim
- Fulphila, pegfilgrastim-jmdb
- Nyvepria, pegfilgrastim-apgf
- Flylnetra, pegfilgrastim-pbbk

Date of Origin: July 1, 2019

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: July 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

All forms of pegfilgrastim are long-acting granulocyte-colony stimulating factors (G-CSF) that helps reduce the risk of infections in patients undergoing strong chemotherapy which depletes the number of white blood cells available in the body. All forms of pegfilgrastim work by stimulating the production of white blood cells which are an essential component in the body’s ability to fight infections.

PLEASE NOTE: This policy and the coverage criteria below do not apply to preferred pegfilgrastim products [pegfilgrastim-cbqv (Udenyca) or pegfilgrastim-bmez (Ziextenzo)]. Preferred pegfilgrastim products do not require pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of non-preferred pegfilgrastim products (as listed in Table 1) prior to coverage.

I. Continuation of therapy (COT): Non-preferred pegfilgrastim products (as listed in Table 1) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Non-preferred pegfilgrastim products (as listed in Table 1) may be considered medically necessary when there is clinical documentation (including chart notes) that criterion A, B, or C below are met.

A. For non-preferred biosimilar pegfilgrastim pre-filled syringe (PFS) products [pegfilgrastim-jmdb (Fulphila), pegfilgrastim-apgf (Nyvepria), and pegfilgrastim-pbbk (Flylnetra)]:
   - Treatment with all preferred biosimilar pegfilgrastim PFS products have been ineffective, not tolerated, or contraindicated (as listed in Table 1)

OR

B. For pegfilgrastim pre-filled syringe (Neulasta PFS):
   - Treatment with all biosimilar pegfilgrastim PFS products (preferred AND non-preferred) have all been ineffective, not tolerated, or all are contraindicated (as listed in Table 1).

OR

C. For pegfilgrastim pre-filled autoinjector device (Neulasta Onpro): criteria 1 and 2 below are met.
   1. Patient or patient’s caregiver is not able to self-administer any of the pegfilgrastim PFS products (as listed in Table 1) due to significant behavioral issues, physical difficulties, and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as severe needle phobia.

   AND

   2. Patient lives greater than 10 miles from the providers office, such that it is not possible to return for administration of any of the pegfilgrastim PFS products (as listed in Table 1).
Table 1 Reference and Biosimilar Pegfilgrastim Products

<table>
<thead>
<tr>
<th>Product name</th>
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<tr>
<td><strong>Pre-filled Syringe (PFS) Products</strong></td>
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<tr>
<td>Reference Product</td>
<td>Neulasta PFS (pegfilgrastim)</td>
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<tr>
<td>Biosimilars</td>
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</tr>
<tr>
<td>Udenyca (pegfilgrastim-cbqv)</td>
<td>Preferred/No PA required (^{a})</td>
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<tr>
<td>Ziextenzo (pegfilgrastim-bmez)</td>
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<tr>
<td>Fulphila (pegfilgrastim-jmdb)</td>
<td>Non-preferred/PA required</td>
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<td>Flylnetra (pegfilgrastim-pbbk)</td>
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<td>Nyvepria (pegfilgrastim-apgf-bvzr)</td>
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<tr>
<td><strong>Autoinjector Device Products</strong></td>
<td></td>
</tr>
<tr>
<td>Reference Product</td>
<td>Neulasta Onpro (pegfilgrastim)</td>
</tr>
<tr>
<td>Biosimilars</td>
<td>none</td>
</tr>
</tbody>
</table>

\(^{a}\) As a preferred biosimilar, available for coverage without pre-authorization (“no PA required”)

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers all the pegfilgrastim pre-filled syringe (PFS) products (as listed in Table 1) to be either self-administered or provider-administered medications.

B. Regence Pharmacy Services considers pegfilgrastim (Neulasta Onpro) to be a provider-administered medication.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement [1-5]

Summary

- The intent of this policy is to promote the use of biosimilar products that are the lowest overall cost. All pegfilgrastim products are considered safe and effective options.
- The policy allows for:
  * Coverage of the non-preferred pre-filled syringe (PFS) pegfilgrastim products when the preferred PFS pegfilgrastim products are ineffective, not tolerated, or contraindicated.
  * Coverage of pegfilgrastim pre-filled autoinjector device (Neulasta Onpro) when the member lives too far from their provider’s office to return for administration of a pre-filled syringe (PFS) product and there is documented medical rationale that a member is unable to self-administer themselves with all the PFS pegfilgrastim product options.
There is no evidence that any one pegfilgrastim product is safer or more effective than another. Among these products, preferred PFS pegfilgrastim products provide the best value for members.

The FDA reaffirmed the lack of superiority of one dosage form of pegfilgrastim over others. In July 2021, the FDA issued a warning to the manufacturer of Neulasta Onpro for misleading promotional material, based on an observational study. In short, the FDA determined claims of superiority of pegfilgrastim via the on-body injector Onpro over pegfilgrastim delivered through a prefilled syringe are not supported due to limitations of the available data. “The promotional communication’s misleading claims and presentations could cause healthcare providers to conclude that pegfilgrastim delivered through the Onpro on-body injector is more effective than pegfilgrastim delivered through a prefilled syringe or that it is more effective than FDA-licensed biosimilar pegfilgrastim products, which are only delivered through a prefilled syringe.”

Hospitals and health-systems have medication formularies developed independent of the health plan. The health plan is unable to cover more expensive products for the convenience of the hospital, health-system, provider, or member. Preferred biosimilar products represent the lowest cost to members and the plan; the use of more expensive products without evidence of superior efficacy or safety is not medically necessary per the member’s contract.

References

**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>6/17/2022</td>
<td>- Modified criteria wording, for operational clarity (no change to intent of the criteria with this annual update).&lt;br&gt;- Addition of a product table, to delineate the preferred/non-preferred, pre-filled syringe/autoinjector, and reference product/biosimilars.&lt;br&gt;- Added Flylnetra (pegfilgrastim-pbbk) to policy.</td>
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<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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<tr>
<td>10/28/2020</td>
<td>Added pegfilgrastim-apgf (Nyvepria) to policy.</td>
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<tr>
<td>7/22/2020</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>4/22/2020</td>
<td>Added COT language. Added pegfilgrastim-bmez (Ziextenzo) as a preferred pegfilgrastim product.</td>
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_Drug names identified in this policy are the trademarks of their respective owners._
**Medication Policy Manual**

**Policy No:** dru564  
**Topic:** Lumoxiti, moxetumomab pasudotox-tdfk  
**Date of Origin:** April 1, 2019  
**Committee Approval Date:** April 21, 2021  
**Next Review Date:** April 2022  
**Effective Date:** July 1, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Moxetumomab pasudotox-tdfk (Lumoxiti) is an intravenously (IV) infused medication used in the treatment of patients with hairy cell leukemia (HCL) after standard front-line therapies.
Policy/Criteria
Most contracts require pre-authorization approval of moxetumomab pasudotox-tdfk (Lumoxiti) prior to coverage.

I. Continuation of therapy (COT): Moxetumomab pasudotox-tdfk (Lumoxiti) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Moxetumomab pasudotox-tdfk (Lumoxiti) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that all criteria A, B, and C below are met:

A. A diagnosis of relapsed or refractory hairy cell leukemia (HCL).

AND

B. At least two prior systemic therapies for HCL have been ineffective or not tolerated, including treatment with cladribine or pentostatin (purine nucleoside analog).

AND

C. Moxetumomab pasudotox-tdfk (Lumoxiti) will be used as monotherapy.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider moxetumomab pasudotox-tdfk (Lumoxiti) to be a self-administered medication.

B. When pre-authorization is approved, moxetumomab pasudotox-tdfk (Lumoxiti) will be authorized for up to a total of 18 infusions (six cycles) over a 12-month period, based on a dose of 0.04 mg/kg on days 1, 3, and 5 every 28-day cycle, for six cycles total.

C. Continued Authorization: No dose beyond a total of 18 infusions (six cycles) will be authorized.

IV. Moxetumomab pasudotox-tdfk (Lumoxiti) is considered investigational when used for all other conditions not stated above.

Position Statement

Summary
- Moxetumomab pasudotox-tdfk (Lumoxiti) is an intravenous (IV) targeted therapy used for the treatment of relapsed or refractory hairy cell leukemia (HCL).
- The intent of this policy is to cover moxetumomab pasudotox-tdfk (Lumoxiti) for the indications and regimen for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- The evidence is limited to one low quality single-arm, open-label trial.
  * All subjects in the trial had relapsed or refractory hairy cell leukemia (HCL) despite at least two prior therapies, including treatment with cladribine or pentostatin (purine nucleoside analog).
  * The trial reported durable complete response rate as a surrogate endpoint in patients who received moxetumomab pasudotox-tdfk (Lumoxiti) as a monotherapy. This surrogate endpoint has not been shown to correlate with improved survival or quality of life in relapsed or refractory HCL.
- The National Comprehensive Cancer Network (NCCN) HCL guideline lists moxetumomab pasudotox-tdfk (Lumoxiti) as a treatment option for relapsed or refractory HCL that has progressed on two prior systemic therapies, including treatment with cladribine or pentostatin.
- Moxetumomab pasudotox-tdfk (Lumoxiti) can be covered for a maximum of 18 doses, based on the dose studied in the trial (0.04 mg/kg of on days 1, 3, and 5 of 28-day cycles for a maximum of six cycles).

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

- A single, low quality, single-arm, open-label trial (N=80) evaluated moxetumomab pasudotox-tdfk (Lumoxiti) in patients with relapsed or refractory HCL who received at least two prior therapies, including treatment with cladribine or pentostatin.
- A durable complete response of 30% was reported in the trial. The median duration of durable complete response was not reached. It is not known if these patients have longer remissions, live longer, or have better quality of life than those who receive other treatment options as there are no direct comparative studies that evaluate any of these outcomes to date. [1]
- Additional evidence is needed to establish the clinical benefit (e.g., improved survival, improved quality of life) of moxetumomab pasudotox-tdfk (Lumoxiti).
- The National Comprehensive Cancer Network (NCCN) HCL guideline lists moxetumomab pasudotox (Lumoxiti) among several other therapies for relapsed or refractory HCL. It is specifically recommended for patients who have progressed on two prior systemic therapies, including treatment with cladribine or pentostatin. [2]
- Other NCCN recommendations for relapsed/refractory HCL include single agent chemotherapy ± targeted therapies, monotherapy targeted agents, and combination targeted therapies. [2]

Investigational Uses

- Based on its mechanism of action, moxetumomab pasudotox-tdfk (Lumoxiti) may have potential applications in other B-cell mediated cancers; [3] however, there is no currently published evidence supporting use in any other condition other than CD-22-positive B-cell HCL.
- NCCN guidelines do not list moxetumomab pasudotox-tdfk (Lumoxiti) as a treatment option outside of relapsed or refractory B-cell HCL setting.

Safety [4]

- To date, there is only short-term, non-comparative information available regarding the safety of moxetumomab pasudotox-tdfk (Lumoxiti).
- Moxetumomab pasudotox-tdfk has a boxed warning for capillary leak syndrome and hemolytic uremic syndrome. Other serious AEs include electrolyte abnormalities.
- The most common AEs (incidence ≥ 20%) in clinical trials included infusion related reactions, edema, nausea, fatigue, headache, pyrexia, constipation, anemia, and diarrhea.

Dosing [4]

- Moxetumomab pasudotox-tdfk (Lumoxiti) is given via intravenous infusion in a dose of 0.04 mg/kg on days 1, 3, and 5 of each 28-day cycle.
- Treatment is given for a maximum of six cycles (18 infusions); however, treatment may be stopped early for disease progression or unacceptable toxicity.
Cross References

None

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Revision History

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<td>4/22/2021</td>
<td>No criteria changes with this annual update.</td>
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</tr>
<tr>
<td>4/22/2020</td>
<td>Added continuation of therapy language (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>10/23/2019</td>
<td>No changes to coverage criteria with this annual update.</td>
</tr>
<tr>
<td>1/31/2019</td>
<td>New policy (effective 4/1/2019). Limits coverage to patients with relapsed/refractory hairy cell leukemia.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Topic:** Libtayo, cemiplimab-rwlc

**Committee Approval Date:** July 16, 2021

**Effective Date:** August 15, 2021

**Policy No:** dru565

**Date of Origin:** April 1, 2019

**Next Review Date:** January 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status. Benefit determinations should be based on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Cemiplimab (Libtayo) is an intravenously administered programmed death receptor-1 blocking antibody (PD-1 inhibitor) that is used in the treatment of several different types of cancers.
Policy/Criteria

Most contracts require pre-authorization approval of cemiplimab (Libtayo) prior to coverage.

I. Continuation of therapy (COT): Cemiplimab (Libtayo) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Cemiplimab (Libtayo) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criterion A, B, or C below is met.

A. A diagnosis of cutaneous squamous cell carcinoma (cSCC) when criteria 1, 2, and 3 below are met:
   1. Documentation that the disease is metastatic OR is not curable with surgical excision or radiation therapy.
   AND
   2. Cemiplimab (Libtayo) will be used as monotherapy.
AND
3. No prior use of programmed death receptor-1 blocking antibody therapy (PD-1 inhibitors) or programmed death-ligand 1 blocking antibody therapy (PD-L1 inhibitors) [see Appendix 1].

OR
B. A diagnosis of basal cell carcinoma (BCC), locally advanced or metastatic, when criteria 1 and 2 below are met:
   1. Prior hedgehog pathway inhibitor therapy [e.g. sonidegib (Odomzo), or vismodegib (Erivedge)] was not effective or was not tolerated, unless use of hedgehog pathway inhibitor therapy is not appropriate.
   AND
   2. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

OR
C. A diagnosis of non-small cell lung cancer (NSCLC), advanced, when criteria 1, 2, and 3 below are met:
   1. The tumor expresses PD-L1 with a Tumor Proportion Score of at least 50% (TPS ≥ 50%).
   AND
   2. No prior use of systemic therapy for advanced disease.
   AND
   3. No prior therapy with PD-1/PD-L1 blocking antibody therapy (see Appendix 1).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider cemiplimab (Libtayo) to be a self-administered medication.
B. When pre-authorization is approved, cemiplimab (Libtayo) will be authorized in doses up to 350 mg every three weeks, until disease progression.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Cemiplimab (Libtayo) is considered investigational when used for all other conditions.
Position Statement

Summary

- Cemiplimab (Libtayo) is an intravenously administered programmed death receptor-1 blocking antibody (PD-1 inhibitor) used in the treatment of several types of cancers.
- The intent of this policy is to cover cemiplimab (Libtayo) in settings where it has been studied and shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.
  * Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of cemiplimab (Libtayo) alone or in combination with other therapies is not coverable ("not medically necessary" or "investigational").
  * It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.
- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.
- National Comprehensive Cancer Network (NCCN) guidelines recommend cemiplimab (Libtayo) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.
- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.
- The FDA-approved dose of cemiplimab (Libtayo) is 350 mg IV every three weeks until disease progression.
- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.
- There are ongoing studies using cemiplimab (Libtayo) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

Cutaneous Squamous Cell Carcinoma (cSCC)

- Two small low-quality, single-arm, non-comparative open-label trials evaluated cemiplimab (Libtayo) in patients with cutaneous squamous cell carcinoma (cSCC) who were not candidates for curative surgical resection or radiation therapy. \[1,2\]

* One trial (phase 1) included 16 patients with metastatic cSCC, and 10 patients with disease that had recurred after two or more prior surgical procedures and the investigator expected that curative resection would be unlikely, or surgery would result in substantial complications or deformity. The second trial (phase 2) included 59 patients with metastatic cSCC.

* Approximately 57% of the subjects in the trials had prior systemic therapy, and about 82% had prior radiotherapy.

* In the phase 1 trial, the objective response rate (ORR), the primary endpoint, was 50% [95% CI: 30, 70]. There were no complete responses.

* In the phase 2 trial, the ORR was 47% [95% CI: 34, 61]. There were four (7%) complete responses.

* The cemiplimab (Libtayo) trials evaluated objective response rate (ORR) as a surrogate endpoint. ORR is a measure of tumor size (visible by physical observation or on x-ray) and is a combination of complete and partial responses. In advanced disease, ORR may not be representative of disease that has traveled to lymph nodes of other parts of the body, so it may not be an accurate measure of clinical benefit. To further complicate interpretation of these results, there were only four complete responses reported out of the 85 patients enrolled in the trial. The remainder were partial responses. There is currently no way to predict in advance who might achieve a complete response.

- It has not yet been determined if cemiplimab (Libtayo) provides clinically meaningful benefit in cSCC as current studies have used surrogate measures such as overall tumor response rate (ORR) which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life. There is no evidence that compares the safety and effectiveness of cemiplimab (Libtayo) with any other therapy that may be used in the inoperable/metastatic cSCC setting. Cemiplimab (Libtayo) was only studied as a monotherapy (not in combination with other systemic therapy).

- Cemiplimab (Libtayo) has not been studied in patients who have received prior PD-1 inhibitor therapy.

- The quality of the currently available evidence is low. Additional evidence is needed to establish the clinical benefit (e.g. improved survival, improved quality of life) and the durability of effect of cemiplimab (Libtayo).

- The National Comprehensive Cancer Center (NCCN) SCC guideline lists cemiplimab (Libtayo) among possible therapies for patients with cutaneous SCC that is considered inoperable. Other potential options include radiation, and/or chemotherapy. \[3\]
**Basal Cell Carcinoma (BCC)**

- The available evidence for cemiplimab (Libtayo) as a monotherapy in BCC is based on a small, single-arm trial (low-quality evidence) that enrolled 84 patients with locally advanced BCC (laBCC) and 48 patients with metastatic BCC (mBCC). [2,4]
  
  * All patients had prior therapy with a hedgehog inhibitor (HHI), the current standard of care for advanced BCC. Seventy six percent had disease progression on a prior HHI, 34% had intolerance to a prior HHI, and 10% had no better than stable disease while on HHI therapy.

  * The primary endpoint of the study was objective response rate (ORR). ORRs ranged from 21% in the mBCC population, to 29% in the laBCC population. There were no complete responses in the mBCC population, while five patients (6%) were considered to have a complete response in the laBCC group.

- As described above under cSCC, ORR is a surrogate endpoint that does not necessarily predict clinical benefit, such as improved overall survival or improved quality of life.

- Of note, the part of the FDA BCC indication for cemiplimab (Libtayo) that refers to “or in whom a HHI is not appropriate” is not part of a population that was defined or enrolled in the clinical trial. There are no known objective parameters used to define this subpopulation.

- All patients in the trial were naïve to prior PD-1/PD-L1 inhibitor therapy. To date, there is no evidence to support the benefit of sequential PD-1/PD-L1 inhibitor therapy after disease has progressed on a prior therapy with these agents.

- HHIs and cemiplimab are the only systemic therapies available for the treatment of laBCC and mBCC. The NCCN Basal Cell Skin Cancer guideline recommends cemiplimab (Libtayo) for patients who have been previously treated with a HHI or for whom a HHI is not appropriate. [5]

**Non-Small Cell Lung Cancer (NSCLC)**

- The evidence for cemiplimab (Libtayo) as a front-line monotherapy for advanced NSCLC when tumors have a PD-L1 of at least 50% [tumor proportion score (TPS) ≥ 50%] is derived from an open-label, randomized controlled trial (N = 710) that compared it with standard platinum doublet chemotherapy. [6]

  * The population included patients with locally advanced (stage IIIB or IIIC, 15%) or metastatic (stage IV, 85%) NSCLC. Patients were naïve to prior therapy for advanced disease and had TPS ≥ 50%.

  * Patients with EGFR mutations, ALK translocations, or ROS1 fusions were excluded from the trial because therapy with targeted agents is the standard front-line therapy in these populations.

  * The median overall survival (OS) in the cemiplimab (Libtayo) treatment arm was superior to that in the cytotoxic chemotherapy arm (22.1 months and 14.3 months, respectively; HR 0.68 [95%CI: 0.53, 0.87], p = 0.0022).

- Cemiplimab (Libtayo) was found to improve median overall survival (OS) relative to standard of care cytotoxic chemotherapy when used as a front-line therapy for advanced NSCLC when the TPS > 50%. However, its relative effectiveness when compared to...
atezolizumab (Tecentriq) or pembrolizumab (Keytruda), which are also each approved as monotherapy in this setting, is not known. There is not head-to-head data that compares any of these agents with one another.

- As with other PD-1/PD-L1 inhibitors in their many other treatment settings, there is no evidence to support the benefit of sequential PD-1/PD-L1 inhibitor therapy after disease has progressed on a prior therapy with these agents.
- The NCCN NSCLC guideline lists cemiplimab (Libtayo) among several preferred, regimens in the population for which it is indicated. [7]

**Investigational Uses**

- There is the potential for off-label use of cemiplimab (Libtayo) based on its mechanism of action (immune checkpoint inhibition).
- There are currently no published clinical trials that evaluate cemiplimab (Libtayo) outside of the settings described above.

**Dosing** [2]

- The FDA-approved dose of cemiplimab (Libtayo) is 350 mg IV every three weeks until disease progression.
- The dose studied in the clinical trials was 3 mg/kg every two weeks, which differs from the FDA-approved dose.

### Appendix 1: FDA-Approved PD-1 and PD-L1 Blocking Monoclonal Antibody Therapies a

<table>
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<th>Programmed death receptor-1 (PD-1) inhibitors</th>
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<tr>
<td>cemiplimab-rwlc (Libtayo)</td>
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<td>pembrolizumab (Keytruda)</td>
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a Or as listed on the FDA.gov website

### Appendix 2: FDA-Approved Hedgehog Pathway Inhibitors

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<td>vismodegib (Erivedge)</td>
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Cross References

Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367
Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390
Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463

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## Revision History

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<tr>
<td>7/16/2021</td>
<td>Added coverage criteria for advanced basal cell carcinoma (BCC) and in the front-line treatment of advanced non-small cell lung cancer (NSCLC) when tumor expression of PD-L1 is at least 50% (TPS ≥ 50%), two newly FDA approved indications.</td>
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</table>
| 4/21/2021     | • No changes to coverage criteria with this annual update.  
    • COT language was updated (no change to intent of coverage criteria).                                                                 |
| 1/22/2020     | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).                                                                 |
| 1/31/2019     | New policy (effective April 1, 2019). Limits coverage to patients with the cutaneous squamous cell carcinoma (cSCC), the setting in which it was studied and has a labeled indication. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru574

Date of Origin: April 1, 2019

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Iobenguane I 131 (Azedra) is a radioactive drug that is injected directly into the bloodstream and is used to treat rare neuroendocrine tumors, specifically pheochromocytoma or paragangliomas when surgery and chemotherapy are not a treatment option.

PLEASE NOTE: This policy is not intended to limit the use of Iobenguane I 131 (Azedra) for diagnostic use.
Policy/Criteria

Most contracts require pre-authorization approval of iobenguane I 131 (Azedra) prior to coverage.

**PLEASE NOTE:** This policy is not intended to limit the use of Azedra for diagnostic use

I. **Continuation of therapy (COT):** Iobenguane I 131 (Azedra) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Iobenguane I 131 (Azedra) may be considered medically necessary when there is clinical documentation (including, but no limited to chart notes) that criteria A, B, and C below are met.

   A. A diagnosis of **pheochromocytoma or paraganglioma (PPGL)** that is locally unresectable or has distant metastases.

   AND

   B. Documentation of a prior positive MIBG (iobenguane) scan [also known as an iobenguane, metaiodobenzylguanidine (MIBG) scan].
AND

C. Documentation of one of the following clinical situations:
   1. The patient is ineligible for curative surgery and has progressed on prior PPGL therapy (such as prior surgery, chemotherapy, radiation)
   OR
   2. The patient is ineligible for chemotherapy.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider iobenguane I 131 (Azedra) to be a self-administered medication.
B. When pre-authorization is approved, iobenguane I 131 (Azedra) may be authorized one-time for a maximum of two therapeutic doses [up to 18,500 MBq (500 mCi) per dose].
C. Additional doses (beyond two) are considered investigational.

IV. Iobenguane I 131 (Azedra) is considered investigational when used for all other conditions.

Position Statement
Summary

- Iobenguane I 131 (Azedra) is a radiolabeled norepinephrine analog indicated for the treatment of patients with iobenguane scan positive, unresectable, locally advanced or metastatic pheochromocytoma or paraganglioma (PPGL) who require systemic anticancer therapy.
- At lower doses iobenguane I 131 (Azedra) is used as a diagnostic agent, this policy is not intended to limit diagnostic use.
- The intent of the policy is to provide coverage for the FDA-labeled indications, where it has been shown to be safe and effective.

* Iobenguane I 131 (Azedra) is approved for the treatment of iobenguane scan positive, unresectable, locally advanced or metastatic pheochromocytoma or paraganglioma (PPGL) that has progressed on prior therapy for PPGL (such as prior surgery, radiation, chemotherapy) or are not candidates for chemotherapy and when curative surgery is not a treatment option. [1]

* In the clinical trial, patients had to: [2]
  o Be at least 12 years old,
  o Fail a prior PPGL therapy OR were not candidates for chemotherapy or other curative therapies (such as surgery for pheochromocytoma)
  o Be on stable antihypertensive medication for pheochromocytoma-related hypertension for at least 30 days

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.
Guidelines/standard of care/alternatives [3]

- The NCCN Neuroendocrine and Adrenal Tumors guideline recognizes iobenguane I 131 (Azedra) for primary treatment of locally unresectable PPGL or distant metastases, with prior positive iobenguane (MIBG) scan.
- The NCCN treatment guidelines recommend initial treatment of antihypertensives to stabilize patients so they can have surgery. Post resection, the NCCN guideline lists the following recommendations: radiation therapy, targeted therapies (iobenguane I131 when iobenguane scan positive, 177 Lu-dotatate (Lutathera) when somatostatin receptor positive, systemic chemotherapy, and clinical trial. All treatments all are 2A recommendations.

- There are no clinical trials that have demonstrated a superior benefit of any therapies for the treatment of PPGL over first line treatment with surgery.
- The recommended therapeutic dose of iobenguane I 131 (Azedra) is no more than 18,500 MBq (500 mCi) administered at least 90 days apart for a total of two therapeutic doses. The safety and effectiveness of higher or more frequent doses have not been established. [1]
- Iobenguane I 131 (Azedra) is administered intravenously as a dosimetric (diagnostic) dose, followed by two therapeutic doses administered at least 90 days apart.
- The recommended dosimetric dose of iobenguane I 131 (Azedra) is no more than 185-222 MBq (5-6 mCi).

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

There is low confidence in the evidence of efficacy for iobenguane I 131 (Azedra). Evidence is limited to one single-arm, phase 2, open-label trial which is insufficient to demonstrate cause and effect, given the absence of a comparator. [1] There is no information on the efficacy of iobenguane I 131 (Azedra) relative to any other therapy.

The endpoint employed in the trial, percentage of patients who had at least a 50% decrease in antihypertensive medications, is a surrogate endpoint that may be relevant to symptomatic treatment of extra-catecholamine release but does not accurately predict the durability of effect of iobenguane I 131 (Azedra) or its effect on any clinically relevant outcome such as overall survival or improved quality of life.

- The reported result was that 17 patients out of 68 evaluable patients (25%) had at least a 50% decrease in antihypertensive medications for at least six months.
- Flaws of this low confidence trial include lack of a meaningful health outcome, open-label study design, and lack of a comparator arm.
There is insufficient evidence to establish the efficacy of iobenguane I 131 (Azedra) for the treatment of neuroblastoma. There are multiple trials listed in clinicaltrials.gov, published early phase clinical trials and a Cochrane review the concluded that there is a lack of compelling evidence for the efficacy of iobenguane I 131 (Azedra) for the treatment of neuroblastoma. [4] Although the preliminary evidence is promising, larger, well controlled trials are needed to establish the safety and efficacy of iobenguane I 131 (Azedra) in this setting.

Safety [1]

- Radiolabeled iobenguane I-131 has been available for decades in lower diagnostic doses. Adverse events at the lower diagnostic doses are well characterized. At the higher therapeutic doses, the safety profile is still emerging, especially as it relates to secondary malignancies and radiation exposure risk. There is insufficient evidence to determine the long-term or relative safety of 131 I iobenguane (Azedra) at the therapeutic doses that have been approved for treatment. However, based on the severity of the disease and the lack of other treatment options in the unresectable, locally advanced or metastatic setting, individual patients may find the potential for benefit to outweigh the risk.

- There is no high-quality evidence to support more frequent dosing of iobenguane I 131 (Azedra) in pheochromocytoma or paragangliomas (PPGL). Higher doses of iobenguane I 131 (Azedra) have not been proven in published clinical trials to be more effective or safer for treatment of PPGL.

- There are multiple drug interactions with iobenguane I 131 (Azedra) that impact effectiveness and safety. This should only be prescribed a provider familiar with these interactions.

Cross References

None

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References


Revision History

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<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
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<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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<tr>
<td>1/31/2019</td>
<td>New policy (effective 4/01/2019). Limits coverage to patients with iobenguane scan positive, unresectable, locally advanced or metastatic pheochromocytoma or paraganglioma (PPGL), the setting in which it was studied and has a labeled indication.</td>
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Medication Policy Manual

Policy No: dru575

Topic: Fabry Disease Treatments

- Fabrazyme, agalsidase beta
- Galafold, migalastat

Date of Origin: April 1, 2019

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Fabrazyme (agalsidase beta) and Galafold (migalastat) are medications used to treat Fabry disease.
Policy/Criteria

Most contracts require pre-authorization approval of Fabrazyme (agalsidase beta) and Galafold (migalastat) prior to coverage.

I. Continuation of Therapy (COT): Fabrazyme (agalsidase beta) and Galafold (migalastat) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to, chart notes) confirming that criteria A through C below are met:

A. One of the following are met:
   1. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      a. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      b. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.
   OR
   2. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      a. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      b. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.
   OR
   3. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

B. For Fabrazyme (agalsidase beta), site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408.

AND

C. Administration, Quantity Limitations, and Authorization Period” below applies, as well as “Investigational Uses” for combination therapy.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.
II. New starts (treatment-naïve patients): Fabrazyme (agalsidase beta) may be considered medically necessary when there is clinical documentation that criteria A and B below are met. Galafold (migalastat) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, C, and D below are met.

A. A diagnosis of **Fabry disease** has been established by or in consultation with a specialist in endocrinology or genetics.

AND

B. **Fabrazyme (agalsidase beta) Only:** Site of care administration requirements are met [refer to Medication Policy Manual, *Site of Care Review*, dru408].

AND

C. **Galafold (migalastat) Only:** The patient has an amenable galactosidase alpha gene (GLA) variant, based on in vitro assay data.

AND

D. **Galafold (migalastat) Only:** Fabrazyme (agalsidase beta) has been ineffective, contraindicated, or not tolerated.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Fabrazyme (agalsidase beta) coverable only under the medical benefit (as a provider-administered medication).

B. Regence Pharmacy Services considers Galafold (migalastat) coverable only under the pharmacy benefit (as a self-administered medication).

C. When pre-authorization is approved, treatments for Fabry Disease will be authorized in the following quantities.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabrazyme (agalsidase beta)</td>
<td>Up to 26 infusions per year; ≤ 1 mg/kg every two weeks</td>
</tr>
<tr>
<td>Galafold (migalastat)</td>
<td>Up to fifteen 123 mg capsules per 30 days.</td>
</tr>
</tbody>
</table>

D. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Combination use of Fabrazyme (agalsidase beta) and Galafold (migalastat) is considered investigational.

V. Fabrazyme (agalsidase beta) and Galafold (migalastat) are considered investigational when used for any condition other than their FDA approved indications, as detailed in the coverage criteria above.
Position Statement

Summary

- Fabrazyme (agalsidase beta) is indicated for the treatment of Fabry disease. Agalsidase replaces the deficient enzyme in patient with Fabry Disease.
- Galafold (migalastat) is an alpha-galactosidase A pharmacological chaperone indicated for the treatment of adults with a confirmed diagnosis of Fabry disease and an amenable galactosidase alpha gene variant based on in vitro assay data.
  * Galafold (migalastat) was approved under an accelerated approval pathway based on reduction in kidney interstitial capillary cell globotriaosylceramide (KIC GL-3) substrate. This is a surrogate endpoint that is associated with a slower rate of progression of renal disease. [1]
- Fabry disease is a rare, multi-system, X-linked, inborn error of glycosphingolipid metabolism caused by partial or complete deficiency of the lysosomal enzyme alpha-Gal. Deficiency in this enzyme results in the progressive intralysosomal accumulation of glycosphingolipids in the kidneys, cardiovascular system, peripheral nerves, and the gastrointestinal tract leading to irreversible organ damage. It is chronic and slowly progressing. [1,2]
- The intent of this policy is to limit coverage of Fabrazyme (agalsidase beta) for the treatment of Fabry disease, for up to the doses for which it has been shown to be safe and effective in trials. Galafold (migalastat) may be covered when Fabrazyme (agalsidase beta) is ineffective or is not a treatment option, as detailed in the coverage criteria.
- Galafold (migalastat) has only demonstrated efficacy in patients with an amenable GLA variant that is interpreted by a clinical genetics professional as causing Fabry disease (pathogenic or likely pathogenic) in the clinical context of the patient. A list of amenable GLA variants is provided in the prescribing information or at http://www.fabrygenevariantsearch.com.
- Although one phase three study (the ATTRACT study) demonstrated that Galafold (migalastat) had efficacy in maintaining estimated glomerular filtration rate (eGFR) or measured GFR and significant decrease in left ventricular mass index compared to enzyme replacement therapy (ERT), its effect on more clinically meaningful outcomes such as overall survival, decreased incidence of end-stage renal disease, or cardiac events is uncertain.
- Fabrazyme (agalsidase beta) has a long history of use and has been demonstrated to reduce microvascular endothelial deposits of GL-3 and improve pain-related quality of life.
- While Galafold (migalastat) provides an oral option for the management of Fabry disease, it lacks long term safety and efficacy data.
- Fabrazyme (agalsidase beta) is administered intravenously every two weeks.
- The recommended dose of Galafold (migalastat) is 123 mg (1 capsule) by mouth once every other day at the same time of day. Higher doses have not been studied.
- The safety and efficacy of Galafold (migalastat) in combination with Fabrazyme (agalsidase beta) have not been established. Galafold (migalastat) has not been studied in combination with enzyme replacement therapy for Fabry disease.

- Uniform recommendations for use of ERT in Fabry disease are not available, but guidelines based on the opinions of experts with experience in treating patients with Fabry’s disease recommend that ERT be initiated as soon as clinical manifestations are observed.

- Note: Galafold (migalastat) and Zavesca (miglustat) are distinct chemical entities. Zavesca (miglustat) is used in the treatment of Gaucher’s disease.

Clinical Efficacy - Fabrazyme (agalsidase beta)

- Fabrazyme (agalsidase beta) is indicated for Fabry disease. A Cochrane Review A systemic review of nine trials comparing agalsidase alpha or beta in 351 participants, showed that when compared to placebo, ERT showed significant improvement regarding microvascular endothelial deposits of GL-3 and in pain-related quality of life. [3] Additionally, a double-blind, placebo-controlled, randomized, controlled trial conducted in 9 countries with Fabrazyme (agalsidase beta) demonstrated slowed progression to renal, cardiac, and cerebrovascular outcomes, and death. [4]

- Enzyme replacement therapy for Fabry disease as long history of use and a larger body of evidence for efficacy compared to Galafold (migalastat).

- Despite limited evidence to correlate improvement microvascular endothelial deposits of GL-3 with clinically meaningful outcomes there are limited treatment options for the management of Fabry disease. [5]

Clinical Efficacy – Galafold (migalastat)

- Accelerated approval for Galafold (migalastat) was based on one phase-3 trial in patients 16 to 74 years of age with Fabry disease (the FACETS study).

- FACETS consisted of 3 parts: a 6-month double-blind, placebo-controlled treatment period, a 6-month open-label treatment period, a 12-month open-label extension phase to assess long-term outcomes. [6]

  * The primary endpoint was reduction in the average number of GL-3 inclusions in kidney interstitial. This is a surrogate endpoint that is associated with a slower rate of progression of renal disease, which provided the basis of accelerated approval.

  * The study enrolled 67 patients, however only 50 patients had amenable GLA variants. Results for were not statistically significant in the ITT population but

  * Among patients with an amenable variant, 52% of patients in the Galafold (migalastat) group had a ≥50% reduction in number of inclusions compared to 45% in the placebo group.

  * Additional studies are needed to confirm the benefit of Galafold (migalastat) on clinical outcomes.
The ATTRACT study was an open-label, randomized, controlled study comparing Galafold (migalastat) to enzyme replacement therapy. Both treatments produced similar reductions: a 12-month open-label treatment period followed by a 12-month open-label optional extension to assess long-term outcomes. The primary endpoint was glomerular filtration rate (GFR). [7]

* Galafold (migalastat) demonstrated similar efficacy to ERT in maintaining eGFR; however, longer term studies evaluating endpoints such as survival, decreased incidence of end-stage renal disease, or cardiac events are needed.

**Genetic Testing** [8]

Galafold (migalastat) has only demonstrated efficacy in patients with an amenable GLA variant that is interpreted by a clinical genetics professional as causing Fabry disease (either pathogenic or likely pathogenic) in the clinical context of the patient. A list of amenable GLA variants is provided in the prescribing information or at [http://www.fabrygenevariantsearch.com](http://www.fabrygenevariantsearch.com).

**Investigational Uses**

The safety and efficacy of Galafold (migalastat) in combination with Fabrazyme (agalsidase beta) have not been established. Galafold (migalastat) has not been studied in combination with enzyme replacement therapy for Fabry disease. In clinical studies of Galafold (migalastat), patients were required to discontinue enzyme replacement therapy before enrolling in the trial.

<table>
<thead>
<tr>
<th>Cross References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site of Care Review, Medication Policy Manual, Policy No. dru408</td>
</tr>
<tr>
<td>Enzyme Replacement Therapies, Medication Policy Manual, Policy No. dru426</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J0180</td>
<td>Injection, agalsidase beta (Fabrazyme), 1 mg</td>
</tr>
</tbody>
</table>
References


Revision History

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>6/17/2022</td>
<td>No criteria updates with this annual review.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Updated continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
</tbody>
</table>
| 7/24/2019     | • Moved Fabrazyme (agalsidase beta) to policy from dru426. Limits coverage to patients with Fabry Disease.  
• No change to intent of other coverage criteria. Clarification of policy language. |
| 01/31/2019    | New policy (effective 4/1/2019). Limits coverage to patients with Fabry Disease with an amenable GAL mutation in whom Fabrazyme (agalsidase beta) has been ineffective, not tolerated, or contraindicated. |

Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Policy No:** dru577

**Topic:** Onpattro, patisiran

**Date of Origin:** April 1, 2019

**Committee Approval Date:** January 20, 2021

**Next Review Date:** January 2022

**Effective Date:** April 1, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Patisiran (Onpattro) is used for treatment of polyneuropathy of hereditary transthyretin (hATTR)-mediated amyloidosis. Hereditary transthyretin-mediated amyloidosis is rare, progressive, hereditary disease caused by the buildup of abnormal protein deposits in the nervous system and major organs.
Policy/Criteria

Most contracts require pre-authorization approval of patisiran (Onpattro) prior to coverage.

I. **Continuation of therapy (COT):** Patisiran (Onpattro) may be considered medically necessary for COT when full policy criteria below are met, including site of care requirements, reauthorization criteria and quantity limit. Diagnostic criteria as well as the BASELINE functional status, including ADL limitations and/or polyneuropathy symptoms, prior to initiation of patisiran (Onpattro) must be provided.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Patisiran (Onpattro) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes), that criteria A through F below are met.

A. Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

AND

B. A diagnosis of hereditary transthyretin (hATTR) amyloidosis with polyneuropathy established by a specialist in neurology, cardiology, amyloidosis, or genetics.

AND

C. The diagnosis has been confirmed by genetic testing, with documentation of a mutation in the transthyretin (TTR) gene.

AND

D. The patient has **Familial Amyloid Polyneuropathy (FAP)** Stage 1 or Stage 2 (as defined in Appendix 1).

AND

E. The patient has symptoms consistent with polyneuropathy (See Appendix 2 for Symptoms of Polyneuropathy).

AND

F. The patient has not had a prior liver transplant

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
III. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers patisiran (Onpattro) to be a provider-administered medication.
   B. When pre-authorization is approved, patisiran (Onpattro) be authorized in quantities as follow:
      1. Patients weighing less than 100 kg: Up to 18 infusions in a one-year period based on dose of 0.3 mg/kg every 3 weeks
      2. Patients weighing 100 kg or more: Up to 18 infusions in a one-year period based on dose of 30 mg every 3 weeks
   C. Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including stability or improvement in symptoms consistent with polyneuropathy.

IV. Patisiran (Onpattro) is considered investigational when used for all other conditions, including but not limited to:
   A. Hereditary transthyretin amyloidosis without polyneuropathy.
   B. In combination with inotersen (Tegsedi).
   C. Other forms of amyloidosis.

Position Statement

Summary
- Patisiran (Onpattro) a small interfering RNA (siRNA) used in the treatment of polyneuropathy of hereditary transthyretin (hATTR) amyloidosis.
- The intent of the policy is to allow coverage of patisiran (Onpattro) for patients with a confirmed diagnosis of hATTR (by genetic testing), when there is documented symptoms due to polyneuropathy, similarly to how it was studied, as detailed in the coverage criteria.
- The efficacy of patisiran (Onpattro) was demonstrated in the APOLLO study, an 18-month, phase 3 randomized, placebo-controlled trial in patients with genetically confirmed hATTR amyloidosis and polyneuropathy (FAP Stage 1 or 2).
- Patients with a history of liver transplant were excluded from the clinical trial.[1,2]
- Patisiran (Onpattro) improved neurologic function and quality of life compared to placebo. [2]
- Genetic testing is required to confirm the diagnosis of hATTR amyloidosis.
- Patisiran (Onpattro) may be covered for up to 0.3 mg/kg every 3 weeks (up to a max of 30 mg IV for patients weighing 100 kg or more), the dose studied in clinical trials. [1] The safety and effectiveness of higher doses have not been established. [1]
The safety and effectiveness of patisiran (Onpattro) in conditions other than polyneuropathy of hATTR have not been established.

The safety and efficacy of patisiran (Onpattro) in combination with inotersen (Tegsedi) has not been established.

Clinical Efficacy

- Efficacy of patisiran (Onpattro) was demonstrated the APOLLO study, an 18-month, phase 3 randomized, placebo-controlled trial. [2,3] Patients were required to meet the following requirements for enrollment:
  * FAP stage 1 (mild ambulatory impairment) or stage 2 (ambulatory with assistance).
  * A diagnosis of hATTR confirmed by genetic testing and biopsy.
  * Symptoms of neuropathy, measured using the Neuropathy Impairment Score (NIS). The NIS is a tool used to measure motor, sensory, and reflex function.
  * Patients with a history of liver transplant were excluded.

- The primary endpoint was change in modified Neuropathy Impairment Score +7 (mNIS+7) from baseline. Change in Norfolk Quality of Life-Diabetic Neuropathy (Norfolk QOL-DN) score was a secondary endpoint.[2,4]
  * The mNIS+7 is exam-based assessment of neuropathy which includes measures of nerve fiber conduction, sensory testing, and autonomic measures (postural blood pressure). Higher scores indicate worse neurologic function.
  * The Norfolk QOL-DN evaluates patients’ perception of impairment with respect to physical functioning/large fiber neuropathy, activities of daily living, neuropathy symptoms, small fiber neuropathy, and autonomic dysfunction. Higher scores indicate poorer quality of life.

- Results showed that patisiran (Onpattro) improved neurologic symptoms and improved quality of life compared to placebo. There is limited data on effect of patisiran (Onpattro) on other end organ dysfunction associated with amyloidosis, such as cardiovascular outcomes or mortality.[2]

Investigational Uses

- There are no published clinical trials evaluating the safety or efficacy of patisiran (Onpattro) for the treatment of any condition other than polyneuropathy of hATTR.

- Trials of patisiran (Onpattro) excluded patients with prior liver transplant. It is unclear if patients who have received a liver transplant would experience benefit as they would not be expected to produce mutated transthyretin protein.
### Appendix 1: Familial Amyloid Polyneuropathy (FAP) Staging\(^5\)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>I</td>
<td>Mild, ambulatory, symptoms at lower limbs limited</td>
</tr>
<tr>
<td>II</td>
<td>Moderate, further neuropathic deterioration, ambulatory but requires assistance</td>
</tr>
<tr>
<td>III</td>
<td>Severe, bedridden/wheelchair bound with generalized weakness</td>
</tr>
</tbody>
</table>

### Appendix 2: Symptoms of Polyneuropathy

<table>
<thead>
<tr>
<th>Peripheral sensorimotor polyneuropathy Symptoms</th>
<th>Autonomic neuropathy symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tingling or increased pain in the hands, feet, hands and/or arms,</td>
<td>Orthostasis</td>
</tr>
<tr>
<td>Loss of feeling in the hands and/or feet, numbness or tingling in the wrists,</td>
<td>Abnormal sweating</td>
</tr>
<tr>
<td>Loss of ability to sense temperature,</td>
<td>Sexual dysfunction</td>
</tr>
<tr>
<td>Difficulty with fine motor skills</td>
<td>Recurrent urinary tract infections</td>
</tr>
<tr>
<td>Seizures</td>
<td>Dysautonomia (constipation and/or diarrhea, nausea, vomiting, anorexia, early satiety)</td>
</tr>
</tbody>
</table>

### Cross References

- Site of Care Review, Medication Policy Manual, Policy dru408

### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>HCPCS</td>
<td>J0222</td>
<td>Injection, patisiran (Onpattro), 0.1 mg.</td>
</tr>
</tbody>
</table>
References

1. Onpattro [Prescribing Information]. Cambridge, MA: Aynlam Pharmaceuticals; August 2018

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/20/2020</td>
<td>Clarified criteria II.E. to allow for coverage in patients with symptoms of polyneuropathy, as noted in Appendix 2. Removed functional impairment component.</td>
</tr>
</tbody>
</table>
| 01/22/2020    | - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria)  
- Clarify reauthorization criteria (including improvement of baseline symptoms) |
| 1/31/2019     | New policy (effective 4/1/2019). Limits coverage to patients with polyneuropathy of hereditary transthyretin amyloidosis, the setting in which it was studied and has a labeled indication. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Topic:** Elzonris, tagraxofusp-erzs

**Date of Origin:** July 1, 2019

**Committee Approval Date:** October 15, 2021

**Next Review Date:** December 2022

**Effective Date:** January 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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**Description**

Tagraxofusp-erzs (Elzonris) is an intravenously administered CD123-directed cytotoxin for the treatment of blastic plasmacytoid dendritic cell neoplasm (BPDCN) in adults and in pediatric patients 2 years and older, a rare type of cancer.
Policy/Criteria

Most contracts require pre-authorization approval of tagraxofusp-erzs (Elzonris) prior to coverage.

I. **Continuation of therapy (COT):** Tagraxofusp-erzs (Elzonris) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A, B, or C below are met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      
      AND
      
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      
      AND
      
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Tagraxofusp-erzs (Elzonris) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) of a diagnosis of **blastic plasmacytoid dendritic cell neoplasm** (BPDCN).

III. **Administration, Quantity Limitations, and Authorization Period**

   A. Regence Pharmacy Services considers tagraxofusp-erzs (Elzonris) coverable only under the medical benefit (as a provider-administered medication).
B. When pre-authorization is approved, tagraxofusp-erzs (Elzonris) will be authorized in quantities of up to five doses per 21-day cycle, until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Tagraxofusp-erzs (Elzonris) is considered investigational when used for all other conditions, including but not limited to:

A. Acute Myeloid Leukemia (AML).
B. Myelodysplastic Syndrome (MDS).
C. Myelofibrosis (MF).
D. Chronic Myelomonocytic Leukemia (CMML).

Position Statement

Summary

- Tagraxofusp (Elzonris) is a CD123-directed cytotoxin used for the treatment of blastic plasmacytoid dendritic cell neoplasm (BPDCN) in adults and in pediatric patients 2 years and older.
- The intent of this policy is to limit coverage of tagraxofusp (Elzonris) to patients diagnosed with BPDCN (in the front-line or relapsed/refractory setting), up to the dose shown to be safe and effective in clinical trials.
- There is low certainty in the evidence that tagraxofusp (Elzonris) improves complete remission/clinical complete remission (CR/CRc) when used in the front-line or relapsed/refractory setting of BPDCN based on one small, multi-cohort, open-label, single-arm trial.
- Typical treatment of BPDCN includes intensive chemotherapy followed by allogeneic stem cell transplant during the first remission based on low-quality, case series and retrospective reviews. The NCCN acute myeloid leukemia guideline lists tagraxofusp (Elzonris) as a potential therapy when used as part of intensive induction, and for patients with relapsed or refractory BPDCN.
- It is not yet known if the composite CR/CRc advantage seen with tagraxofusp (Elzonris) will translate to any clinically relevant benefit such as extended duration of remission or overall survival (OS) based on current trial results.
- The relative efficacy of the tagraxofusp (Elzonris) compared to multi-agent chemotherapy regimens is not known. There have been no direct comparisons of CR or OS benefit made to date.
- The safety and efficacy of tagraxofusp (Elzonris) in acute myeloid leukemia (AML), myelodysplastic syndrome (MDS), myelofibrosis (MF), or chronic myelomonocytic leukemia (CMML) has not been established. Use in these settings is considered investigational.
- Use of tagraxofusp (Elzonris) in combination with other cytotoxic or targeted chemotherapy regimens has not been shown to improve its effectiveness.
- Common adverse effects (AEs) reported with tagraxofusp (Elzonris) include capillary leak syndrome, nausea, fatigue, peripheral edema, pyrexia, and weight loss.
- The covered dose of tagraxofusp (Elzonris) is 12 mcg/kg IV over 15 minutes once daily on days 1 to 5 of a 21-day cycle. The safety and effectiveness of higher doses have not been established. Dose modifications may be necessary for severe AEs.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence.** NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

**Clinical Efficacy**

- The efficacy of tagraxofusp (Elzonris) for the treatment of BPDCN was evaluated in one, unpublished, prospective, multi-cohort, open-label, single-arm trial. [1,2]
  * The trial consisted of three stages: Stage 1 (lead-in, dose escalation), Stage 2 (expansion), and Stage 3 (pivotal, confirmatory). The review of efficacy was based primarily on the results of the Stage 3 cohort which included patients with treatment-naïve BPDCN.
  * Thirteen subjects were enrolled in the Stage 3 cohort which evaluated the composite endpoint CR/CRc rate, median CR/CRc and duration of CR/CRc.
  * CR/CRc was achieved in 54% of patients however median CR/CRc was not reached in the treatment group.
  * In a separate cohort of 15 patients with relapsed/refractory BPDCN, one patient achieved a CR (duration: 111 days) and one patient achieved CRc (duration: 424 days).
  * Evidence from this trial is of low quality due to the small, multi-cohort, open-label, single-arm design. Investigators and subjects were unmasked to treatment allocation.
  * Additionally, the composite CR/CRc endpoint has not been validated to accurately predict clinically relevant endpoints such as OS or quality of life.

- The treatment of BPDCN is addressed in the National Comprehensive Cancer Network (NCCN) acute myeloid leukemia (AML) guideline. The guideline recommends tagraxofusp (Elzonris) as a therapy for induction of intensive remission, and for patients with relapsed or refractory disease (category 2A). [3]
Investigational Uses

- There are no published clinical trials evaluating the safety or efficacy of tagraxofusp (Elzonris) for the treatment of acute myeloid leukemia (AML), myelodysplastic syndrome (MDS), myelofibrosis (MF), or chronic myelomonocytic leukemia (CMML). [4]

- Although a cohort in the pivotal trial included patients with AML, there is insufficient data to support the efficacy and safety of tagraxofusp (Elzonris) in this setting. [1]

Safety and Administration [1]

- The adverse events (AEs) observed with tagraxofusp (Elzonris) have the potential to be severe if not properly managed.

- Tagraxofusp (Elzonris) has a box warning for capillary leak syndrome which may be life-threatening or fatal if not properly managed.

- Other serious AEs reported with tagraxofusp (Elzonris) include hepatotoxicity, nausea, fatigue, peripheral edema, pyrexia, and weight loss.

- The dose of tagraxofusp (Elzonris) is 12 mcg/kg IV over 15 minutes once daily on days 1 to 5 of a 21-day cycle. Dose modifications may be necessary for severe AEs (refer to prescribing information).

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<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>HCPCS</td>
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<td>Injection, tagraxofusp-erzs (Elzonris), 10 micrograms</td>
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References


### Revision History

<table>
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<th>Revision Date</th>
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<tr>
<td>10/15/2021</td>
<td>Updated continuation of care language. No change to the intent of the existing coverage criteria.</td>
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| 10/28/2020    | • Continuation of care language was added to the policy.  
• There were no changes to the intent of the existing coverage criteria. |
| 4/25/2019     | New policy (effective 07/01/2019). Limits use of tagraxofusp (Elzonris) to patients diagnosed with BPDCN (in the front-line or relapsed/refractory setting), up to the dose shown to be safe and effective in clinical trials. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual  

**Policy No:** dru590  

**Topic:** Gamifant, emapalumab-lzsg  

**Date of Origin:** July 1, 2019  

**Committee Approval Date:** April 21, 2021  

**Next Review Date:** April 2022  

**Effective Date:** July 1, 2021  

**IMPORTANT REMINDER**  
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.  

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.  

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.  

**Description**  
Emapalumab-lzsg (Gamifant) is a monoclonal antibody that binds to and inhibits interferon-gamma (IFNγ). It is used in the treatment of refractory primary hemophagocytic lymphohistiocytosis (HLH), a rare blood condition, as a bridge to hematopoietic stem cell transplantation (HSCT, also known as a “bone marrow transplant”). It is given by intravenous (IV) infusion.
Policy/Criteria
Most contracts require pre-authorization approval of emapalumab (Gamifant).

I. Continuation of therapy (COT): Emapalumab (Gamifant) may be considered medically necessary for COT when criterion A or B below is met.

A. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

OR

B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Emapalumab (Gamifant) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

A. A diagnosis of refractory primary hemophagocytic lymphohistiocytosis (HLH), established by or in consultation with a hematologist.

AND

B. Documentation that at least one prior HLH treatment (as listed in Appendix A) was ineffective, not tolerated or all options are contraindicated.

PLEASE NOTE: Ineffective is defined as no clinical response or improvement after at least two weeks of treatment.

AND

C. Emapalumab (Gamifant) will be used in combination with dexamethasone.

AND

D. The patient meets criteria for, and actively participates in, a health plan case management program.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider emapalumab (Gamifant) to be a self-administered medication.

B. When pre-authorization is approved, emapalumab (Gamifant) will be authorized as follows:

1. Initial starting dose of up to 1 mg/kg twice weekly, for up to a total of 8 weeks.
2. If there is insufficient response to starting doses, emapalumab (Gamifant) may be authorized for up to 10 mg/kg/dose twice weekly (dose escalation may be requested through your health plan case manager).

3. Total maximum duration of therapy: 8 weeks, or until time of hematopoietic stem cell transplantation (HSCT). Any authorization beyond 8 weeks will be requested and coordinated through your health plan case manager.

IV. Emapalumab (Gamifant) is considered investigational when used for any other conditions, including, but not limited to:
   A. Retreatment, defined as use for relapsed/refractory HLH on or after a prior course of emapalumab (Gamifant) treatment.
   B. Previously untreated (treatment-naïve) primary HLH
   C. Secondary HLH (such as HLH developed during malignancies)

V. Emapalumab (Gamifant) is considered not medically necessary when used beyond 8 weeks.

Position Statement

Summary

- The intent of this policy is to allow for coverage of emapalumab (Gamifant) for treatment refractory primary hemophagocytic lymphohistiocytosis (HLH) as a bridge to hematopoietic stem cell transplantation (HSCT), the indication studied in trials, when conventional HLH treatments are ineffective, not tolerated, or use is contraindicated.

- Primary HLH is a rare, autosomal recessive condition. It is caused by a genetic lymphocyte defect, which leads to uncontrolled immune activation, inflammation, and overproduction of cytokines such as interferon-γ (IFNγ), interleukin 6 (IL-6), and interleukin 10 (IL-10). If left untreated, primary HLH is a fatal condition, with a median survival of two months after diagnosis.

- Emapalumab (Gamifant) is a monoclonal antibody that binds to and inhibits IFNγ. It is to be used until HSCT can occur and is given in combination with dexamethasone.

- The safety and efficacy of emapalumab (Gamifant) was established based on one single-arm clinical trial in patients with treatment refractory primary HLH. There was a 63% ORR at week 8, and 70% survived to receive a HSCT. Despite the promising short-term response, clinically meaningful long-term outcomes, such as overall survival, are unknown at this time.

- Emapalumab (Gamifant) was not sufficiently studied in patients with treatment-naïve primary HLH (only seven treatment-naïve patients were included in the trials). Conventional treatment options, including etoposide (HLH-94, HLH-2004), and anti-thymocyte-based therapies, have demonstrated effectiveness in this population. The use of emapalumab (Gamifant) as first line therapy is not recommended by the FDA at this time.
- Emapalumab (Gamifant) may be covered in doses up to 10 mg/kg twice weekly for 8 weeks or until HSCT, the dose studied in trials. The efficacy and safety of higher doses, a longer treatment duration, or use for relapsed/refractory HLH after a prior course of emapalumab (Gamifant) has not been established.

**Clinical Efficacy**

**Refractory Primary Hemophagocytic Lymphohistiocytosis [1]**

- One unpublished, phase 2/3, single arm, open-label trial evaluated emapalumab (Gamifant) for the treatment of refractory primary HLH (n=27) and treatment-naïve primary HLH (n=7).
- According to the FDA, the number of treatment-naïve patients was too small to be used as confirmatory evidence in this population and only the refractory population was considered to be the primary analysis population.
  * Patients received emapalumab (Gamifant) with dexamethasone for 8 weeks, or until HSCT, whichever occurred first.
  * The primary endpoint was overall response (ORR) at the end of treatment.
  * Treatment with emapalumab (Gamifant), was associated with an overall response rate of 63% (17/27) in the refractory primary HLH treatment group.
  * A total of 70% (19/27) of patients treated with emapalumab (Gamifant) survived to receive a HSCT.
- To date, there are no trials comparing emapalumab (Gamifant) with other treatments, either as a first-line or refractory therapy. Therefore, the relative efficacy is unknown.

**Treatment Guidelines [2,3]**

- The following therapies are recommended for treatment of primary HLH:
  * Initial therapy: systemic therapy consisting of etoposide, cyclosporine, dexamethasone, and methotrexate (if CNS activity suspected) for 8 weeks.
  * Therapy can be continued past 8 weeks until matched donor is found and hematopoietic stem cell transplantation (HSCT) can occur.
  * The optimal medications to use in salvage therapy, for patients who do not respond to conventional treatment options listed above, is unclear at this time. Options include the addition of antithymocyte globulin (ATG; thymoglobulin) or alemtuzumab.
- Primary HLH is characterized by frequent reactivations unless patients undergo HSCT. During a reactivation, intensification of the systemic therapy will often result in a response to treatment, but the only known cure of primary HLH is HSCT.
- Between 25-50% of patients will fail to achieve a complete response to the current standard of care therapy and will require additional treatments.
- The 5-year survival for HLH is 50-60% with the therapies mentioned above and HSCT.
- Conventional treatment protocols, such as etoposide- (HLH-94, HLH-2004) and antithymocyte-based therapies have all demonstrated effectiveness in treatment-naïve primary HLH.
Investigational Uses

- Although the American Society of Hematology (ASH) lists emapalumab (Gamifant) as a reported salvage option in secondary HLH, there is no evidence for the safety and efficacy of emapalumab (Gamifant) for use in patients with secondary HLH.[4] Studies are ongoing for use of emapalumab (Gamifant) in secondary HLH.[5]

- There is no evidence to establish the safety or efficacy of emapalumab (Gamifant) in patients with secondary HLH, treatment-naïve primary HLH, use greater than 8 weeks, or as retreatment after a previous course of emapalumab (Gamifant) therapy.

Safety [1,6]

- The most common side effects (>20% incidence) experienced during clinical trials were infections, hypertension, infusion-related reactions, and pyrexia.

- There were seven deaths (26%) in patients who received emapalumab (Gamifant), reported at the time of the data cut-off. Of the seven deaths, five occurred prior to receiving the HSCT, and two occurred after the transplant.
  * Of the pre-transplant deaths, four were the result of new infections or worsening of a pre-existing infection.
  * Post-transplant deaths were attributed to known post-transplant complications, graft versus host disease and graft rejection.

### Appendix A. Conventional Treatments Used for Primary Hemophagocytic Lymphohistiocytosis [1,2]

<table>
<thead>
<tr>
<th>Treatment</th>
<th>HLH-94</th>
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<td>Etoposide</td>
<td>Dexamethasone</td>
<td>Anti-Thymocyte Globulin (ATG, thymoglobulin)</td>
</tr>
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<td></td>
<td>Intrathecal Methotrexate (if CNS involvement is suspected)</td>
<td>Etoposide</td>
<td>Corticosteroid</td>
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<tr>
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<td></td>
<td>Dexamethasone</td>
<td>Cyclosporine</td>
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<tr>
<td></td>
<td></td>
<td>Cyclosporine</td>
<td>Intrathecal Methotrexate (if CNS involvement is suspected)</td>
</tr>
</tbody>
</table>

Alemtuzumab (Campath*) may be considered, as a second line therapy. For the purposes of the coverage of Gamifant, only medications listed within the table above will be considered versus the coverage criteria for previous therapy.

* Note: Campath is no longer commercially available but may be provided free of charge via the Campath distribution program.
References


6. Gamifant [Prescribing Information]. Waltham, MA: Novimmune SA; November 2018

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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<td>4/21/2020</td>
<td>Updated COT language (no change to intent).</td>
</tr>
<tr>
<td>4/22/2020</td>
<td>No criteria changes with this annual update. Added COT.</td>
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<tr>
<td>4/25/2019</td>
<td>New policy. Effective 7/1/2019. Limits coverage to patients with refractory primary hemophagocytic lymphohistiocytosis (HLH) as a bridge to hematopoietic stem cell transplantation (HSCT), when conventional HLH treatments are ineffective, not tolerated, or use is contraindicated, the setting in which it was studied in trials.</td>
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Medication Policy Manual

**Policy No:** dru591

**Topic:** Zolgensma, onasemnogene abeparvovec-xioi

**Date of Origin:** July 5, 2019

**Committee Approval Date:** July 16, 2021

**Next Review Date:** January 2022

**Effective Date:** August 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Onasemnogene abeparvovec-xioi (Zolgensma) is an adeno-associated virus (AAV) vector-based gene therapy which replaces the defective SMN1 gene. It is used in the treatment of spinal muscular atrophy (SMA), a rare neuromuscular condition that affects motor function. It is given as a single, one-time intravenous (IV) infusion.
Policy/Criteria

Most contracts require pre-authorization approval of onasemnogene abeparvovec-xioi (Zolgensma) prior to coverage.

I. Continuation of therapy (COT): Onasemnogene abeparvovec-xioi (Zolgensma) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Onasemnogene abeparvovec-xioi (Zolgensma) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through K below are met.

A. A diagnosis of spinal muscular atrophy (SMA), established by or in consultation with a pediatric neuromuscular specialist (pediatric neurologist or rehabilitation doctor).

AND

B. Genetic confirmation of bi-allelic SMN1 mutations and two or three copies of survival motor neuron 2 (SMN2).

AND

C. Anti-AAV9 antibody titers ≤1:50, as determined by ELISA binding immunoassay.

AND

D. Documentation of SMA associated symptoms, if present. This is to include an assessment of baseline motor function, with objective function-based testing (such as with CHOP-INTEND score).

AND

E. The patient will be less than 2 years of age at the time of the onasemnogene abeparvovec-xioi (Zolgensma) infusion.

AND

F. Patient has NOT received prior SMA gene therapy.

AND

G. Documentation of comprehensive SMA care, including physical therapy, respiratory care, and nutrition support as part of the patient’s care plan.

AND

H. The patient does not have advanced SMA, as defined by one of the following:

1. Complete paralysis of the limbs.

OR
2. Requires invasive ventilatory support, defined as a tracheotomy with positive pressure.

OR

3. Requires non-invasive ventilatory support for greater than 16 hours per day.

AND

I. The patient meets criteria for, and actively participates in, a health plan care management program.

AND

J. Onasemnogene abeparvovec-xioi (Zolgensma) will be administered intravenously (IV).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider onasemnogene abeparvovec-xioi (Zolgensma) to be a self-administered medication.

B. When pre-authorization is approved, onasemnogene abeparvovec-xioi (Zolgensma) will be authorized in quantities up to $1.1 \times 10^{14}$ vg/kg IV once, for one treatment course per lifetime.

C. Additional infusions of onasemnogene abeparvovec-xioi (Zolgensma) will not be authorized.

IV. Onasemnogene abeparvovec-xioi (Zolgensma) is considered investigational when used for all other conditions not specifically addressed in the coverage criteria above, including, but not limited to:

A. Other types of classic SMA not specified above.

B. Non-5q SMA (SMA due to genetic abnormalities other than on chromosome 5q).

V. Onasemnogene abeparvovec-xioi (Zolgensma) is considered not medically necessary when used in combination with nusinersen (Spinraza) or risdiplam (Evrylsdi).
Position Statement

Summary\(^{[1-4]}\)

- Zolgensma is an adeno-associated virus (AAV) vector-based gene therapy which replaces the defective SMN1 gene.
- Spinal muscular atrophy (SMA) is a rare condition, in which a genetic defect in the survival motor neuron (SMN) 1 gene leads to progressive loss of motor neuron function, hypotonia, weakness, and chronic respiratory insufficiency.
  * Children with the most severe form (SMA type 1) have symptoms before the age of 6 months and do not reach motor milestones (like sitting unassisted). SMA type 1 is also called “infantile SMA” or Werdig-Hoffman disease.
  * Later onset SMA (such as SMA type 2 or 3) is diagnosed later (symptom onset after 6 months of age), when a child fails to meet a motor milestone. SMA type 2 is also called Dubowitz disease. SMA type 3 is also called Kugelberg-Welander disease.
- Zolgensma has limited clinical trial data in a very specific patient population. However, in the currently available data, there is evidence of a clinical improvement in SMA-related symptoms (improvement in motor function) in a patient population where motor function of that level would not be expected.
- Currently available clinical trial data is limited to pre-symptomatic SMA patients with two or three copies of SMN2 and symptomatic SMA type 1 patients with two copies of the SMN2 gene.
  * A diagnosis of SMA was confirmed genetically with a bi-allelic SMN1 mutations.
  * Clinical trials of Zolgensma in patients older than 2 years of age via intrathecal route are ongoing.
  * In addition, the safety and efficacy of Zolgensma in patients with a different number of copies of SMN2 is unknown at this time.
  * Genetic testing is required to confirm a diagnosis of classic SMA (5q SMA) and to rule out other causes of spinal muscular atrophy. Onset of SMA symptoms (such as failure to meet motor milestones) differentiates SMA types 1, 2, and 3. SMA type 1 has onset of symptoms prior to 6 months of age and is the most severe, progressive form of SMA.
  * Zolgensma has not been studied in patients with advanced SMA, such as complete paralysis of the limbs or disease that has progressed to the point of requiring permanent ventilation. This is defined as the use of invasive ventilatory support (tracheotomy with positive pressure) OR non-invasive ventilator support for greater than 16 hours per day. Patient with complete paralysis or significant ventilatory support were excluded from clinical trials.
- Patients with Anti-AAV9 antibody titers >1:50 (determined by ELISA binding immunoassay) were excluded from the trial due to the potential for these antibodies to render the AAV9 vector-based therapy ineffective.
Guidelines recommend aggressive, comprehensive supportive care and monitoring of motor milestones with objective function-based testing (such as with a HINE or CHOP-INTEND score).

- Zolgensma is only coverable in patients who are less than 2 years of age by the date of Zolgensma administration.

- Zolgensma may be covered for up to one dose per lifetime. There is no data on the safety or efficacy of repeated doses.

- Zolgensma is administered via a single, weight based intravenous (IV) infusion. There is insufficient evidence to support the safety or efficacy of other routes of administration at this time.

- The use of nusinersen (Spinraza) or risdiplam (Evrysdi) after Zolgensma for patients with an incomplete response, defined as persistent SMA symptoms, may be effective. However, the use of nusinersen (Spinraza) for residual SMA symptoms after Zolgensma is considered not medically necessary. Given the very high cost of the Zolgensma and nusinersen (Spinraza) therapies, we are unable to cover both treatment options.

**Clinical Efficacy**

**Spinal Muscular Atrophy Type 1**

- One, ongoing, open-label, phase III trial (SPR1NT) in pre-symptomatic pediatric patients (n=29) with two or three copies of SMN2, demonstrated promising results.
  - In the 2-copy cohort (n=14), 100% of patients were alive without the need for respiratory support, 100% could sit independently for > 30 seconds, and 64% were walking independently at 14 months.
  - Preliminary results for the 3-copy cohort (n=15) demonstrate a similar story, although the trial is ongoing in this subset.

- One, low confidence, phase 1, open-label, dose-escalation trial in symptomatic pediatric patients with SMA type 1. Patients either enrolled in a low dose cohort (n=3) or a high dose cohort (n=12). The high dose cohort received the proposed therapeutic dose.
  - The primary endpoint was safety, which was defined as the incidence of grade III or higher treatment related toxicity.
  - Secondary endpoints included changes in Children’s Hospital of Philadelphia Infant Test of Neuromuscular Diseases (CHOP-INTEND) from baseline score and improvement of motor function and muscle strength.
    - No major milestones were achieved in the cohort that received the low dose Zolgensma.
    - In the high dose cohort at 24 months, the following major milestones were achieved:
      - 11 out of 12 patients (92%) had head control and could sit unassisted for 5 seconds.
      - 9 out of 12 patients (75%) could roll over or sit unassisted for 30 seconds.
• 7 out of 12 patients (58%) required no ventilatory support.
• 6 out of 12 patients (50%) required no nutritional support.
• 2 out of 12 patients (17%) could crawl, stand, and walk independently.

* At two years, no patients in either cohort died or were put on permanent ventilation.

* Trial data is largely limited to SMA type 1 patients less than 6 months of age. A single patient over 6 months received the proposed therapeutic dose and did not have a response to the treatment. This prompted a change in the inclusion criteria to only enroll patients less than 6 months of age at the time of the infusion.

- An unpublished phase 3 trial (n=22) in the symptomatic SMA type 1 population (the STR1VE trial), with encouraging preliminary results, is currently ongoing.

Treatment Guidelines[1, 2]
- Guidelines recommend maximizing aggressive multidisciplinary care in patients with all types of SMA.
  * Therapy should be tailored to the patient’s functional level (non-sitter, sitter, or walker) and is to include a proactive approach (often prior to symptoms begin) for the following: rehabilitation, orthopedic management, nutritional support, pulmonary management, and psychological/social support for impacted families.
  * Although uptake in these treatment guidelines have improved survival for all types of SMA, developmental milestones are rarely acquired after a diagnosis of SMA type 1 is made.

- Guidelines were updated in 2017, and do not address the role of nusinersen (Spinraza), risdiplam (Evyrsdi), or Zolgensma.
- SMA is included as part of the recommended newborn health screenings by the Secretary of the Department of Health and Human Services. The majority of US states have implemented this recommendation and a pre-symptomatic diagnosis will soon be the predominant phase of SMA disease identification.

Investigational Uses
- There are no published trials that establish the safety or efficacy of Zolgensma in patients over the age of two years, such as those with symptomatic type 3 or type 4 SMA.
- There is no evidence to establish the safety or efficacy of repeat doses of Zolgensma. If medical necessity criteria are met, only a single dose of Zolgensma will be covered per lifetime.

Safety[3]
- During the pivotal clinical trial of Zolgensma (n=15), about 1/3 of patients had liver enzyme elevation.
  * In total, there were 4 patients who experienced elevations in transaminases. These elevations were attenuated by prednisolone and were not associated with...
any other liver enzyme elevations or clinical manifestations.

* There were two treatment-related grade IV events, both significant elevations in liver transaminases (14 to 37 times the upper limit of normal).

- The most common side effects (>40% incidence) experienced during clinical trials were upper respiratory tract infections, vomiting, constipation, pyrexia, nasal congestion, and gastroesophageal reflux. These are common conditions seen in all patients with SMA, although it is unclear if this therapy worsens these conditions, due to a lack of a control group.

- Due to the small number of patients treated with Zolgensma during clinical trials, additional data is necessary to further define the safety profile.

## Cross References

Spinraza, nusinersen, Medication Policy Manual, Policy No. dru485

Evrysdi, risdiplam, Medication Policy Manual, Policy No. dru647

## Codes

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<th>Description</th>
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<td>HCPCS</td>
<td>J3399</td>
<td>Injection, onasemnogene abeparvovec-xioi (Zolgensma), per treatment, up to 5x10^15 vector genomes</td>
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<td>ICD-10</td>
<td>G12.0</td>
<td>Infantile spinal muscular atrophy, type I [Werdnig-Hoffmann]</td>
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## Appendix 1. Distribution of SMN2 Copy Number by SMA Type Worldwide[^4]

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<td>6</td>
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<td>0%</td>
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References


2. Finkel RS, Mercuri E, Meyer OH, et al. Diagnosis and management of spinal muscular atrophy: Part 2: Pulmonary and acute care; medications, supplements and immunizations; other organ systems; and ethics. *Neuromuscular disorders : NMD.* 2018;28(3):197-207. PMID: 29305137


Revision History

<table>
<thead>
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<th>Revision Date</th>
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<td>7/16/2021</td>
<td>Effective 8/15/2021:</td>
</tr>
<tr>
<td></td>
<td>• Updated coverage criteria to allow for use of Zolgensma in genetically diagnosed SMA in patients with 2 or 3 copies of SMN2, including those diagnosed pre-symptomatically, up to 2 years of age.</td>
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<tr>
<td></td>
<td>• Updated criteria to be inclusive of additional symptoms of advanced SMA, including complete paralysis of the limbs AND permanent respiratory support.</td>
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<tr>
<td></td>
<td>• Removed clinical trial ineligibility requirement.</td>
</tr>
<tr>
<td>1/20/2021</td>
<td>Added combination use with risdiplam (Evrysdi) to not medically necessary uses.</td>
</tr>
<tr>
<td>4/22/20</td>
<td>Modification of criteria pertaining to coverage of onasemnogene abeparvovec in patients with prior nusinersen use (<em>criteria F</em>). Updated to include prior SMA gene therapy only.</td>
</tr>
<tr>
<td>6/26/2019</td>
<td>New policy. Effective 7/5/2019. Limits coverage to symptomatic SMA Type I patients with 2 copies of the SMN2 gene and will be less than 6 months of age at the time of the Zolgensma infusion, the setting in which it was studied in trials.</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru598

**Topic:** Cablivi, caplacizumab-yhdp

**Date of Origin:** October 1, 2019

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

---

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Cablivi (caplacizumab-yhdp) is an injectable monoclonal nanobody, which inhibits von Willebrand Factor (VWF) from binding to platelets to treat a rare blood disorder called acquired thrombotic thrombocytopenic purpura (aTTP).
Policy/Criteria

Most contracts require pre-authorization approval of Cablivi (caplacizumab-yhdp) prior to coverage.

I. **Continuation of therapy (COT):** Cablivi (caplacizumab-yhdp) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New Starts (Treatment-Naïve Patients):** Cablivi (caplacizumab-yhdp) is considered not medically necessary for acquired thrombotic thrombocytopenic purpura (ATTP).

III. Cablivi (caplacizumab-yhdp) is considered investigational when used for all other conditions.

IV. **Administration, Quantity Limitations, and Authorization Period**
   
   A. Regence Pharmacy Services considers Cablivi (caplacizumab-yhdp) coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication).
   
   B. Although the use of Cablivi (caplacizumab-yhdp) is considered “not medically necessary,” if pre-authorization is approved, Cablivi (caplacizumab-yhdp) will be authorized as follows:
      1. **Initial authorization:** In quantities of up to 31 of the 11 mg vials for the first 30 days based on a dosing of 22 mg on Day 1, followed by 11 mg daily for up to 30 days after Plasma Exchange (PLEX) has ended.
      2. **Continued authorization (after the first 30 days):** Up to a maximum 1 vial (11mg) per day for 30 days after PLEX has ended.
      3. **Dose continuation beyond 30 days post-PLEX as follows:**
         a. ATTP has stabilized: No additional caplacizumab will be authorized.
         b. ATTP has not stabilized: A maximum total of twenty-eight 11-mg vials per 28-day supply may be authorized until time of ATTP stabilization. No additional caplacizumab will be authorized once ATTP has stabilized, or beyond 28 days, whichever occurs first.
     
   C. Authorization shall be reviewed as follows to confirm that current medical necessity criteria are met and that the medication is effective.
1. **Initial Authorization:** Shall be reviewed at 30 days. Ongoing coverage of Cablivi (caplacizumab-yhdp) requires clinical documentation, including chart notes which indicate PLEX duration and discontinuation date and that the patient is not experiencing a recurrence of ATTP. Recurrence defined as thrombocytopenia requiring PLEX re-initiation. If a patient experiences more than 2 recurrences of ATTP while on therapy, no further Cablivi (caplacizumab-yhdp) will be authorized.

2. **Dose Continuation beyond 30 days post-PLEX:** Shall be reviewed at 30 days post PLEX discontinuation. Ongoing coverage of Cablivi (caplacizumab-yhdp) requires clinical documentation, including chart notes, that indicate the following:
   a. Patient is at high risk for a recurrence of ATTP defined as ADAMTS13 level <10%.
   
   AND
   
   b. Immunosuppressive therapy has been optimized. Defined as restarting or increasing corticosteroid dose or starting other immunosuppressive treatments (such as rituximab).

**Position Statement**

- Cablivi (caplacizumab-yhdp) is a monoclonal nanobody used to treat adult patients with acquired thrombotic thrombocytopenic purpura (ATTP) in combination with plasma exchange (PLEX) and immunosuppressive therapy.

- The use of Cablivi (caplacizumab-yhdp) for ATTP is considered not medically necessary, given the lack of proven additional benefit versus PLEX and immunosuppressive therapy, the current standard of care, which is known to have a very high response rate.

- ATTP is a rare hematologic condition, caused by a severe deficiency in ADAMTS13, a protease responsible for cleaving von Willebrand factor (VWF) multimers. Without being cleaved, VWF multimers bind to platelets and form large platelet-rich clots which lead to tissue ischemia and multiorgan dysfunction.

- A presumptive diagnosis of ATTP is made if patients present with thrombocytopenia and hemolytic anemia without any other obvious cause. ATTP is confirmed by the finding of severe ADAMTS13 deficiency (<10%).

- The current standard of care (SOC) for ATTP is PLEX and immunosuppressive therapy, which has led to a survival rate of 80-90%. Despite this high survival rate, neurocognitive deficits, arterial hypertension, and major depression have been reported to be more prevalent in survivors of ATTP compared to healthy populations without ATTP.

- Caplacizumab was studied in one phase 3, multi-center, placebo-controlled trial of adult patients with ATTP. Patients continued to receive on the standard of care, PLEX and immunosuppressive therapy, during the trial.

* The trial demonstrated no clinically meaningful difference in the time to normalization of platelet count between caplacizumab and placebo-treated
patients. All patients in the trial remained on their baseline treatment regimen, which consisted of PLEX and immunosuppressive therapy. The caplacizumab trial data is of low quality, with a high risk of bias.

- Caplacizumab does not address the underlying pathophysiology of ATTP; therefore, its role in reducing long-term sequelae of ATTP, such as neurocognitive deficits, arterial hypertension, and major depression, is unknown at this time.

- Additional, long-term, controlled trials are needed to assess the safety of caplacizumab, as bleeding safety signals were noted during clinical trials.

- Despite a reduction in ATTP recurrence rate, there is insufficient evidence to establish that the addition of caplacizumab to ATTP treatment regimens provides any value over the current SOC in improving clinically relevant outcomes, such as improving survival or reducing thromboembolic events. Therefore, the use of caplacizumab in ATTP is considered not medically necessary.

- Although the use of Cablivi (caplacizumab-yhdp) is NMN, the doses studied in trials were not to exceed use 30 days past the end of PLEX.

Clinical Efficacy\(^{1,2}\)

- Evidence of efficacy for Cablivi (caplacizumab-yhdp) comes from one phase 3 double-blind, multicenter, placebo-controlled, randomized controlled trial. Patients were randomized to receive caplacizumab plus standard of care (SOC) (n=72) or placebo plus SOC (n=73) in the front line setting for ATTP. Treatment was continued for 30 days after the discontinuation of PLEX.

* The primary endpoint was time to platelet count response, defined as a platelet count $\geq 150 \times 10^9/L$ with subsequent stopping of daily plasma exchange (PLEX) within 5 days. There was a statistically significant improvement in the time to platelet count response (2.69 vs 2.88 days with placebo); however, the difference is not clinically meaningful.

* Key secondary endpoints consisted of a composite of ATTP-related events (ATTP-related death, a recurrence of ATTP, or a treatment-emergent major thromboembolic event).

  - Fewer patients had an ATTP-related event (12 vs 49% with placebo). This was driven predominantly by a reduction in ATTP recurrence (4 vs. 38% in placebo).

* Recurrence was defined as a decrease in the platelet count requiring re-initiation of PLEX. It is important to note, that a change in platelet count is a surrogate endpoint with unknown clinical relevance.

* There was no statistically significant improvement in overall survival or the rate of thromboembolic events in the caplacizumab versus placebo-treated groups during trials.

* Although caplacizumab demonstrated improvement in platelet counts and a reduction in ATTP recurrence rate during the trial and short 28-day follow-up period, an earlier phase 2 trial demonstrated similar short-term results in
recurrence rate. However, over the course of one year, there was no difference in recurrence rate between the caplacizumab and placebo-treated groups.
* Differences in the immunosuppressive regimens and the baseline population between the treatment arms has the potential to confound the results of the trial.

- The pivotal phase 3 caplacizumab trial only included a 28-day follow-up period after treatment was discontinued. An ongoing follow-up trial is underway.
- There is insufficient evidence to establish that the addition of caplacizumab to ATTP treatment regimens improves any clinically meaningful outcomes, such as overall survival or a reduction in thromboembolic events, compared to the current SOC.

**Guidelines**[3,4]
- The British Committee for Standards in Hematology updated their guidelines in 2012 and recommend the following for management of ATTP:
  * Initiation of daily PLEX, continued for a minimum of 2 days after complete remission. This is defined as a normal platelet count (>150×10^9/L). Increased frequency of PLEX can be considered in refractory disease.
  * Intravenous or oral steroids should be started immediately after PLEX is initiated.
  * Rituximab should be considered in refractory patients or those with severe disease, including disease with neurological or cardiac symptoms.
  * Additional immunosuppressives, such as vincristine and cyclosporine, are generally reserved for ATTP refractory to other lines of therapy mentioned above.
  * The guidelines have not been updated since the approval of caplacizumab.

**Safety**[5]
- The overall safety profile appears to be moderate and manageable in the context of the disease; however, bleeding safety signals were noted during the caplacizumab trials. Bleeding events occurred in 58% of patients in the caplacizumab treated group, versus 43% of the placebo-treated group.

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<th>Codes</th>
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<td>HCPCS</td>
<td>C9047</td>
<td>Injection, caplacizumab-yhdp (Cablivi), 1mg.</td>
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References


5. Cablivi [prescribing information]. Cambridge, MA: Genzyme; 02/2019

Revision History

<table>
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<th>Revision Summary</th>
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<tr>
<td>06/17/2022</td>
<td>No criteria changes with annual update, revision of description to simplify (no change of intent of policy).</td>
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<tr>
<td>7/19/2021</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of policy).</td>
</tr>
<tr>
<td>7/24/2019</td>
<td>New policy. Effective 10/1/2019. The use of Cablivi (caplacizumab-yhdp) for ATTP is considered not medically necessary given the lack of clinically meaningful benefit versus the current standard of care alone, which is known to have a very high response rate.</td>
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Medication Policy Manual

Policy No: dru600

Topic: Polivy, polatuzumab vedotin-piiq

Date of Origin: November 15, 2019

Committee Approval Date: March 18, 2022

Next Review Date: March 2023

Effective Date: April 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Polivy (polatuzumab vedotin-piiq) is an intravenously administered medication used in the treatment of refractory or relapsed diffuse large B-cell lymphoma (DLBCL).
Policy/Criteria
Most contracts require pre-authorization approval of Polivy (polatuzumab vedotin-piiq) prior to coverage.

I. **Continuation of therapy (COT):** Polivy (polatuzumab vedotin-piiq) may be considered medically necessary for COT when is clinical documentation (including, but not limited to chart notes) confirming that criteria A, B, or C AND D below are met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. The requested number of doses (cycles) is within the policy limits below (Note: doses (cycles) already administered will be counted towards the coverable maximum quantity).

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.
II. New starts (treatment-naïve patients): Polivy (polatuzumab vedotin-piiq) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through E below are met.

A. A diagnosis of **diffuse large B-cell lymphoma, not otherwise specified** (DLBCL NOS).

AND

B. The disease is refractory to, or has progressed on or after, at least two prior chemotherapy regimens for DLBCL.

AND

C. The patient is not eligible for a stem cell transplant (SCT).

AND

D. Polivy (polatuzumab vedotin-piiq) will be given in combination with Treanda (bendamustine) and rituximab.

AND

E. The patient has not had prior therapy with Polivy (polatuzumab vedotin-piiq).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Polivy (polatuzumab vedotin-piiq) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Polivy (polatuzumab vedotin-piiq) will be authorized for up to six infusions (cycles). No additional doses beyond the six initial infusions (cycles) will be authorized.

IV. Polivy (polatuzumab vedotin-piiq) is considered investigational when used for all other conditions.

Position Statement

**Summary**

- The intent of this policy is to allow for coverage of Polivy (polatuzumab vedotin-piiq) in diffuse large B-cell lymphoma (DLBCL) not otherwise specified (NOS) when front-line treatment alternatives are not effective and stem cell transplant (SCT) is not an option, up to the dose shown to be safe and effective in trials.

- Polivy (polatuzumab vedotin-piiq) received approval via the FDA Accelerated pathway meaning that a clinical benefit has not yet been established.

- The primary study compared the addition of Polivy (polatuzumab vedotin-piiq) to Treanda (bendamustine)/rituximab with Treanda (bendamustine)/rituximab alone (control arm) in patients with refractory or relapsed DLBCL who had a median of two prior therapies, and who were not candidates for a stem cell transplant.
- The study analyzed complete response (CR) at the end of therapy as a surrogate endpoint. This surrogate endpoint has not been validated which means it is not known if an improvement in this measure will predict an improvement in any meaningful clinical outcome (such as overall survival or quality of life).
- Patients on Polivy (polatuzumab vedotin-piiq) experience a higher rate of side effects than those receiving Treanda (bendamustine) and rituximab alone.
- The NCCN guideline lists Polivy (polatuzumab vedotin-piiq) among several possible options for patients with relapsed or refractory DLBCL who are not candidates for stem cell transplant.
- The pivotal trial evaluated patients with DLBCL NOS. Because DLBCL is a heterogeneous disease made up of different subtypes based on morphology, genetics, and biological behavior, additional studies in the other DLBCL subtypes are necessary before it can be established that Polivy (polatuzumab vedotin-piiq) is safe and effective in a broader DLBCL population.
- Polivy (polatuzumab vedotin-piiq) is administered intravenously in a dose of 1.8 mg/kg every three weeks for a total of 6 doses. A higher dose or a longer duration of therapy has not been shown to improve efficacy and may increase the risk of AEs.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.
- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy
The efficacy of Polivy (polatuzumab vedotin-piiq) is based on a small cohort of patients from a larger, open-label study. Approval was via the FDA Accelerated pathway meaning a clinical benefit has not been established. The overall quality of the evidence is poor. [1-3]
The cohort (N = 80) included patients with relapsed or refractory DLBCL, not otherwise specified (NOS).

* Patients received a median of two prior systemic therapies for their disease [approximately one-quarter (12 patients) had one prior therapy, one-quarter had two prior therapies, and one-half had three or more prior therapies].
* Nearly all (98%) had prior therapy with an anti-CD20 agent.
* Enrolled subjects were not candidates for an autologous stem cell transplant.

The study compared complete response rates (CR) achieved at the end of therapy (after six cycles) in patients who received Polivy (polatuzumab vedotin-piiq) plus Treanda (bendamustine)/rituximab [BR] with patients who received BR alone (control arm).

The complete response rate, an unvalidated radiographic endpoint, was 40% and 18% in the Polivy (polatuzumab vedotin-piiq) and control arms, respectively.

It is possible that the efficacy of Polivy (polatuzumab vedotin-piiq) is overstated. Exposure to Treanda (bendamustine) and rituximab was lower in the BR alone arm than in the Polivy (polatuzumab vedotin-piiq)/BR arm. Additionally, the response rates in the control arm (BR) of this study are approximately half of what has been reported in prior studies for BR in a similar population.

There are no published studies that evaluate the efficacy of Polivy (polatuzumab vedotin-piiq) as a single agent.

Guidelines [4]
- The NCCN B-cell lymphoma guideline lists Polivy (polatuzumab vedotin-piiq) in combination with rituximab and bendamustine among treatment options for DLBCL that is refractory to, or relapsed after, prior therapy when patients are not eligible for a stem cell transplant.

Investigational Uses
- There are no published clinical trials evaluating the safety or efficacy of Polivy (polatuzumab vedotin-piiq) outside of the DLBCL NOS treatment setting.
- The use of Polivy (polatuzumab vedotin-piiq) in combination with anti-CD20 monoclonal antibodies other than rituximab is considered investigational. In the pivotal study, a small cohort of patients (N = 27) received Polivy (polatuzumab vedotin-piiq) plus Gazyva (obinutuzumab)/bendamustine in parallel to the Polivy (polatuzumab vedotin-piiq) plus BR and BR alone study arms; however, this data is of low quality and was not considered in the approval of Polivy (polatuzumab vedotin-piiq). [5] Furthermore, there is no evidence to establish the safety or efficacy of Gazyva (obinutuzumab) as a single agent in DLBCL.
- The safety and efficacy of Polivy (polatuzumab vedotin-piiq) have not been established when:
  * Used as a monotherapy
  * Used in doses higher than 1.8 mg/kg every 3 weeks for 6 infusions (total of 6 doses)
**Safety [1]**
- When Polivy (polatuzumab vedotin-piiq) is combined with Treanda (bendamustine) and rituximab:
  * The most commonly reported AEs are cytopenias and peripheral neuropathy.
  * The incidence of grade 3 or greater adverse effects (AEs) increases by approximately 10% over the use of Treanda (bendamustine) and rituximab alone [84% versus 74%, respectively].
- Strong CYP3A4 inhibitors may increase exposure to unconjugated monomethyl auristatin E (MMAE) [the anti-mitotic chemotherapeutic agent part of the polatuzumab vedotin-piiq molecule].

**Dosing and Administration [1]**
- Polivy (polatuzumab vedotin-piiq) is administered:
  * As an intravenous infusion over 90 minutes. Premedication with an antihistamine and antipyretic is recommended. If tolerated, the rate of infusion can be decreased to 30 minutes on subsequent infusions.
  * In a dose of 1.8 mg/kg every 3 weeks for six cycles total.
  * In combination with Treanda (bendamustine) and rituximab
- There are recommendations to modify the dose of Polivy (polatuzumab vedotin-piiq) for peripheral neuropathy, infusion-related reactions, and cytopenias.

### Appendix A: Subtypes of Diffuse Large B-cell Lymphoma (DLBCL) [4]

<table>
<thead>
<tr>
<th>DLBCL, not otherwise specified (NOS)*</th>
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<tr>
<td>Follicular lymphoma (grade 3 only)</td>
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<tr>
<td>DLBCL coexistent with a low-grade lymphoma of any kind</td>
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<tr>
<td>Intravascular large B-cell lymphoma</td>
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<tr>
<td>DLBCL-associated with chronic inflammation</td>
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<tr>
<td>Anaplastic lymphoma kinase (ALK)-positive DLBCL</td>
</tr>
<tr>
<td>Epstein-Barr virus (EBV)-positive DLBCL in older patients</td>
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<tr>
<td>T-cell/histiocyte-rich large B-cell lymphoma</td>
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* This is the only subtype of DLBCL for which Polivy (polatuzumab vedotin-piiq) is indicated
Cross References

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<th>Description</th>
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<td>HCPCS J9309</td>
<td>Injection, polatuzumab vedotin-piiq (Polivy), 1 mg</td>
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References

## Revision History

<table>
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<th>Revision Date</th>
<th>Revision Summary</th>
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</table>
| 3/18/2022     | • Made criterion IV (Investigational Uses) more general by removing specific conditions that might be considered investigational.  
• Combined allowed quantity and maximum number of infusions into one criterion (combined III.B and III.C).  
• Updated position statement to reflect guideline changes, etc. |
| 4/21/2021     | Updated COT. Clarification of criteria wording (no change to intent of coverage criteria with this annual update). |
| 6/15/2020     | Removed references to brand Rituxan from policy to account for upcoming changes in biosimilars policy (dru620). |
| 4/22/2020     | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |
| 10/23/2019    | New policy (effective 11/15/2019). Limits coverage to patients with relapsed or refractory DLBCL NOS, the setting in which it was studied and has a labeled indication. |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru605  
**Date of Origin:** August 15, 2019  
**Committee Approval Date:** April 21, 2021  
**Next Review Date:** January 2022  
**Effective Date:** July 1, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Esketamine (Spravato) is a nasal medication used for the management of treatment-resistant depression (TRD) or depressive symptoms in adults with major depressive disorder (MDD) with acute suicidal ideation or behavior. It is used in combination with an oral antidepressant. Esketamine (Spravato) is administered under the supervision of a healthcare provider.
Policy/Criteria

Most contracts require pre-authorization approval of esketamine (Spravato).

I. Continuation of therapy (COT): Esketamine (Spravato) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Esketamine (Spravato) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below are met:

A. Depressive symptoms in adults with major depressive disorder (MDD) with acute suicidal ideation or behavior as established by or in consultation with a mental health specialist when criteria 1 and 2 below are met:

1. Esketamine (Spravato) is prescribed by or in consultation with a psychiatrist

AND

2. Esketamine (Spravato) will be used in combination with an oral antidepressant.

OR

B. A diagnosis of major depressive disorder (MDD) established by or in consultation with a mental health specialist when criteria 1 through 5 below are met.

1. Esketamine (Spravato) is prescribed by or in consultation with a psychiatrist.
AND

2.  At initiation of esketamine (Spravato), documentation of baseline depressive symptoms and goals of esketamine (Spravato) therapy (e.g., resolution of listed symptoms).

AND

3.  Documentation including duration of treatment and outcome of therapy that the patient has an inadequate response to at least three different antidepressants or treatment regimens from two classes (e.g., TCAs, SSRIs, SNRIs, or augmenting medications. (see Appendix 1)

AND

4.  Documentation of non-pharmacologic treatments (including but not limited to cognitive behavioral therapy. (see Appendix 2)

AND

5.  Esketamine (Spravato) will be used in combination with an oral antidepressant.

III.  Administration, Quantity Limitations, and Authorization Period

A.  Regence Pharmacy Services does not consider esketamine (Spravato) to be a self-administered medication.

B.  When pre-authorization is approved, esketamine (Spravato) will be authorized in quantities as follows:

1.  **Initial authorization:** up to 12 dose kits (56 mg or 84 mg per dose kit) in 8 weeks.

2.  **Continued authorization or re-authorization:** up to 24 dose kits (56 mg or 84 mg per dose kit) in 24 weeks.

C.  Authorization shall be reviewed as follows to confirm that medical necessity criteria are met and that the medication is effective.

1.  **Initial authorization:** Authorization shall be reviewed after 8 weeks. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit evidenced by improvement from baseline depression symptoms.

2.  **Continued authorization (after the initial 8-week period):** Authorization shall be reviewed at least every 24 weeks. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met (i.e., esketamine [Spravato] continues to be used in conjunction with an oral antidepressant), that the medication is providing clinical benefit evidenced by improvement or sustained improvement from baseline depression symptoms, and with current dose and frequency of esketamine (Spravato) documented.
IV. Esketamine (Spravato) is considered investigational when used for all other conditions, including but not limited to:

A. Depression other than listed in the coverage criteria above.

B. As an anesthetic agent.

Position Statement

Summary

- Esketamine (Spravato) nasal spray is a non-competitive N-methyl-D-aspartate receptor antagonist that is used in combination with an oral antidepressant for the treatment of treatment-resistant depression (TRD) and depressive symptoms in adults with major depressive disorder (MDD) with acute suicidal ideation or behavior. [1]

- The intent of the policy is to cover esketamine (Spravato) for the treatment of TRD, and depressive symptoms in adults with major depressive disorder (MDD) with acute suicidal ideation or behavior, the indications where it has been studied and shown to be safe and effective, as detailed in coverage criteria.

- The efficacy of esketamine (Spravato) plus an oral antidepressant was evaluated in three phase 3, randomized, controlled acute efficacy trials, as well as one maintenance trial. Patients had moderate to severe MDD and failed therapy with at least two other oral antidepressants. [2]

- The efficacy of esketamine (Spravato) was evaluated in two Phase 3, 4-week randomized, double-blind, placebo-controlled studies in adults with moderate-to-severe MDD (MADRS total score >28) who had active suicidal ideation and intent. All patients received comprehensive standard of care treatment, including an initial inpatient psychiatric hospitalization and a newly initiated or optimized oral antidepressant (AD) (AD monotherapy or AD plus augmentation therapy). Esketamine (Spravato) plus standard of care demonstrated statistical superiority on the primary efficacy measure of the change from baseline in the MADRS total score at 24 hours after first dose (Day 2) compared to placebo nasal spray plus standard of care.

- Guidelines recommend psychotherapy in combination with an oral antidepressant for the initial treatment for MDD. If there is no adequate response after optimizing the antidepressant dose for an adequate duration of time, switching to another antidepressant (from the same or different class), or combination with another antidepressant (from a different class) or non-antidepressant medication (lithium, thyroid hormone, or a second-generation antipsychotic) are recommended treatment options. [3]

- Esketamine (Spravato) is dosed at 56 mg or 84 mg twice per week during the induction phase (weeks 1 to 4). Evidence of therapeutic benefit is evaluated at the end of the induction phase (at week 4) to determine the need for continued treatment. During the maintenance phase (beyond week 4), treatment is administered once weekly or every two weeks. [1]
Because of the risk for sedation and dissociation after administration, esketamine (Spravato) must be administered under direct supervision of a healthcare provider, including a post-administration 2-hour observation period. In addition, because the medication is for administration only by a REMS-certified provider, esketamine (Spravato) is not considered a self-administered medication. Therefore esketamine (Spravato) is coverable only under the medical benefit.

The safety and effectiveness of esketamine (Spravato) in conditions other than treatment-resistant depression and depressive symptoms in adults with major depressive disorder (MDD) with acute suicidal ideation or behavior have not been established.

Clinical Efficacy
- The efficacy of esketamine (Spravato) was evaluated in three phase 3, randomized, controlled trials in patients with MDD. [2]
  * Patients were required to have a MADRS total score ≥28.
  * Patients failed therapy with at least two other antidepressants.
  * The trials compared treatment with esketamine (Spravato) plus an oral antidepressant to an oral antidepressant alone for four weeks.
  * The primary endpoint in all three trials was the change from baseline in the MADRS total score.
  * Of the three trials, one trial demonstrated a significant difference between treatment with esketamine (Spravato) plus an oral antidepressant compared to the oral antidepressant alone.

A long-term randomized, double-blind, maintenance study was also conducted and determined that the time to relapse was delayed in patients treated with esketamine (Spravato) plus an oral antidepressant compared to an oral antidepressant alone. [1]

Investigational Uses
The safety and effectiveness of esketamine (Spravato) in conditions other than treatment-resistant depression have not been established.

Safety [1]
- The most common adverse reactions associated with esketamine (Spravato) are dissociation, dizziness, nausea, sedation, vertigo, hypoesthesia, anxiety, lethargy, increased blood pressure, vomiting, and feeling drunk.
- Because of the possibility of delayed or prolonged sedation and dissociation, esketamine (Spravato) must be administered under the direct supervision of a healthcare provider, including the administration period and the post-administration 2-hour observation period with each treatment session.
- Patients are not to engage in potentially hazardous activities, such as driving a motor vehicle or operating machinery, until the next day after a restful sleep.
- Esketamine (Spravato) is only available through a restricted program under a REMS due to the serious adverse outcomes from sedation, dissociation, and abuse and misuse. REMS certified pharmacies and distributors include, but are not limited to, facility (such as hospital) or specialty pharmacies such as home infusion pharmacies. Once REMS certified, providers should call 1-855-382-6022 to access information on how to obtain Spravato for their patient(s).

* A REMS-certified pharmacy will dispense (in person or ship) esketamine (Spravato) for a patient directly to the administering provider’s office for storage and administration.

* All REMS-certified providers must have a facility DEA number and the ability to “Maintain records on all shipments of SPRAVATO received and dispensing information including the patient name, dose, number of devices and date administered.”

* Esketamine (Spravato) is billed through the patient’s medical benefit and the patient will pay the cost share (copay or coinsurance) to the specialty pharmacy.

Appendix 1: An antidepressant or treatment regimen would include any of the following classes or combination of classes [4]

<table>
<thead>
<tr>
<th>TCAs</th>
<th>SSRIs</th>
<th>SNRIs</th>
<th>Serotonin Modulators</th>
<th>Other Antidepressants</th>
<th>Augmentation Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>amitriptyline</td>
<td>citalopram</td>
<td>desvenlafaxine</td>
<td>nefazodone</td>
<td>bupropion</td>
<td>lithium</td>
</tr>
<tr>
<td>clomipramine</td>
<td>escitalopram</td>
<td>duloxetine</td>
<td>trazodone</td>
<td>mirtazapine</td>
<td>liothyronine (Cytomel)</td>
</tr>
<tr>
<td>desipramine</td>
<td>fluoxetine</td>
<td>levomilnacipran</td>
<td>vortioxetine</td>
<td>MAOIs (e.g.,</td>
<td>atypical</td>
</tr>
<tr>
<td>doxepin</td>
<td>paroxetine</td>
<td>milnacipran</td>
<td></td>
<td>isocarboxazid,</td>
<td>antipsychotics</td>
</tr>
<tr>
<td>imipramine</td>
<td>sertraline</td>
<td>venlafaxine</td>
<td></td>
<td>phenelzine,</td>
<td>(aripiprazole,</td>
</tr>
<tr>
<td>maprotiline</td>
<td>vilazodone</td>
<td></td>
<td></td>
<td>sertraline,</td>
<td>brexpiprazole,</td>
</tr>
<tr>
<td>nortriptyline</td>
<td></td>
<td></td>
<td></td>
<td>olanzapine,</td>
<td>quetiapine,</td>
</tr>
<tr>
<td>trimipramine</td>
<td></td>
<td></td>
<td></td>
<td>risperidone</td>
<td>olanzapine,</td>
</tr>
</tbody>
</table>

Appendix 2: Psychotherapy methods to treat major depressive disorder may include, but are not limited to the following:

- Cognitive behavioral therapy (CBT)
- Interpersonal therapy (IPT)
- Psychodynamic therapy
- Problem-solving therapy (in individual and group formats)
Cross References

Transcranial Magnetic Stimulation as a Treatment of Depression and Other Disorders, Medical Policy Manual. Medicine, Policy No. 148.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>G2082</td>
<td>Visit esketamine (Spravato) 56 mg or less</td>
</tr>
<tr>
<td>HCPCS</td>
<td>G2083</td>
<td>Visit esketamine (Spravato) &gt; 56 mg</td>
</tr>
</tbody>
</table>

References

5. Spravato REMS enrollment form. [Accessed 7/2/2019]. Available online at:
https://www.spravatorems.com/pdfs/SPRAVATO(TM)_REMS_Healthcare_Setting_Enrollment.pdf
6. SPRAVATO Treatment Centers. [Accessed 7/2/2019]. Available online at:
https://www.spravato.com/find-a-center#YTk4MDQw

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/21/2021</td>
<td>Updated COT language wording (no change to intent). No other criteria changes with this annual update.</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>Added coverage criteria for major depressive disorder (MDD) with acute suicidal ideation or behavior, a newly approved FDA indication. Clarified intent of other coverage criteria for MDD.</td>
</tr>
<tr>
<td>01/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
</tr>
<tr>
<td>07/24/2019</td>
<td>New policy (effective 8/15/2019). Limits coverage to patients with treatment-resistant depression, the setting in which it was studied and has a labeled indication.</td>
</tr>
</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Topic:** Vyondys 53, golodirsen

**Committee Approval Date:** January 20, 2021

**Effective Date:** April 1, 2021

**Policy No:** dru606

**Date of Origin:** August 15, 2019

**Next Review Date:** January 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Golodirsen (Vyondys 53) is an intravenous medication that may be used for Duchenne muscular dystrophy (DMD) when patients have a specific gene mutation. A clinical benefit, such as improved ambulation, of golodirsen has not been established.
Policy/Criteria

Most contracts require pre-authorization approval of golodirsen (Vyondys 53) prior to coverage.

I. Continuation of therapy (COT): Golodirsen (Vyondys 53) is considered investigational for all conditions, per the full policy criteria below.

**Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Golodirsen is considered investigational for all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 53 skipping (Table 1).

Position Statement

**Summary**

- Golodirsen is an intravenous therapy FDA approved for the treatment of Duchenne muscular dystrophy (DMD) when there is a confirmed mutation of the DMD gene that is amenable to exon 53 skipping. It was approved through the FDA Accelerated Approval Program based on an increase in dystrophin in skeletal muscles observed in some patients during a phase I/II trial. However, A clinical benefit of the drug, including improved motor function, improved strength, lack of disease progression (such as maintained ability to ambulate), and/or improved quality of life has not been established at this time. The FDA label states, “Continued approval for this indication may be contingent upon verification of a clinical benefit in confirmatory trials.”

- A clinical benefit (e.g. prolongation of independent ambulation, improved quality of life, or prevention of disease progression and disability) of golodirsen has not been established.

* In one ongoing, open-label trial in a total of 25 patients, golodirsen was shown to increase dystrophin levels. However, it has not been proven that an increase in dystrophin will translate to improved clinical outcomes, such as improved motor function.

- The U.S. Centers for Disease Control and Prevention (CDC) has developed general management guidelines for DMD. The CDC recommends corticosteroids and supportive care to slow disease progression. These guidelines were published prior to the submission of golodirsen to the FDA, thus the use of golodirsen for DMD has not yet been addressed. [1-3]

**Clinical Efficacy** [4]

- Evidence regarding the effect of golodirsen on dystrophin levels is inconclusive. Data is limited to a small, unpublished, ongoing phase I/II trial; a placebo-controlled, two-part, dose escalation trial. Additional, larger, well-controlled trials are needed to establish the safety and efficacy of golodirsen in Duchenne muscular dystrophy (DMD).
In the phase I/II trial, 12 patients were initially randomized to receive either placebo or golodirsen for 12 weeks. After 12 weeks, all existing patients and 13 newly recruited patients, received open-label golodirsen at a dose of 30mg/kg intravenously once weekly. Compared to baseline, the mean dystrophin levels increased by 0.918% of normal for the golodirsen-treated patients at 48 weeks.

* Dystrophin production is a surrogate biomarker of disease improvement with an unknown correlation to health outcomes.

* An absolute increase in dystrophin levels has not been correlated to improved ambulation or muscle function and a minimal clinically important difference in dystrophin levels has not yet been established. Experts have proposed that dystrophin levels greater than 10% of normal may be clinically meaningful; however, validation is needed.

* The trial is ongoing (as of the date of FDA approval) to assess change in motor function. If the trial does not show an improvement in motor function, the FDA approval could be withdrawn.

- Although change in distance walked on a 6-minute walk test (6MWT) is a primary endpoint in the ongoing phase I/II golodirsen trial, no results have been reported.

- Golodirsen has not yet been shown to improve any clinical outcomes such as quality of life, prolongation of independent ambulation, or prevention of disease progression and disability.

**Safety**

The safety data is limited to very few patients included in the clinical trials. However, there was renal toxicity was observed in animals who received golodirsen. The FDA label states, “Although renal toxicity was not observed in the clinical studies with VYONDYS 53, renal toxicity, including potentially fatal glomerulonephritis, has been observed after administration of some antisense oligonucleotides.” [5]

<table>
<thead>
<tr>
<th>Table 1: Mutations Amenable to Exon 53 skipping</th>
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<tbody>
<tr>
<td>19-52</td>
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<td>21-52</td>
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<td>27-52</td>
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<tr>
<td>28-52</td>
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</table>
Cross References

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J1429</td>
<td>Injection, golodirsen (Vyondys), 10 mg</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G71.0</td>
<td>Muscular dystrophy</td>
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</table>

References


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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<tbody>
<tr>
<td>1/20/2021</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>1/22/2020</td>
<td>No criteria changes with this annual update.</td>
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</table>
| 12/13/2019    | - Policy updated with brand name, based on FDA approval (on 12/12/19).  
                - Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |
                Use of golodirsen is considered investigational in the treatment of all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 53 skipping. The available clinical trial data was insufficient to demonstrate safety or efficacy of golodirsen in the treatment of DMD. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru612

Topic: Anabolic Bone Medications

- Bonsity, teriparatide
- Evenity, romosozumab
- Forteo, teriparatide
- Tymlos, abaloparatide

Date of Origin: January 1, 2020

Committee Approval Date: October 15, 2021

Effective Date: January 1, 2022

Next Review Date: December 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Medications included in this policy help with bone formation and are used to treat osteoporosis. Osteoporosis is when the bone becomes brittle and may lead to fractures.
Policy/Criteria

Most contracts require pre-authorization approval of anabolic bone medications prior to coverage.

I. **Continuation of therapy (COT):** Anabolic bone medications may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   AND

   D. For provider-administered medications: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Anabolic bone medications may be considered medically necessary when there is clinical documentation (including, but not limited to, chart notes) that criteria A through C below are met.

   A. For provider-administered medications: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

   AND

   B. One of the following diagnostic criteria 1 through 4 below is met.
1. **For romosozumab (Evenity):** Diagnosis of osteoporosis with high risk of fracture as defined by meeting criteria a and b below:
   a. Documented as postmenopausal.
   AND
   b. One of the following risks is present (criterion i or ii):
      i. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5).
      OR
      ii. Current or history of fragility fracture.

2. **For abaloparatide (Tymlos):** Diagnosis of osteoporosis with high risk of fracture as defined by meeting criteria a and b below:
   a. Documented as postmenopausal
   AND
   b. One of the following risks is present (criterion i or ii):
      i. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5).
      OR
      ii. Current or history of fragility fracture.

3. **For teriparatide (Forteo):** Diagnosis of osteoporosis or osteopenia with high risk for fracture as defined by meeting criterion a, b, or c below:
   a. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5).
   OR
   b. Current or history of fragility fracture.
   OR
   c. Diagnosis of osteopenia (T-score between -1 and -2.5) and a history of glucocorticoid use for at least three months at a dose of 5 mg per day or higher of prednisone (or equivalent).

4. **For teriparatide (Bonsity):** Diagnosis of osteoporosis or osteopenia and with high risk for fracture as defined by meeting criterion a or b below:
a. Both teriparatide (Forteo) and abaloparatide (Tymlos) have been ineffective, contraindicated, or not tolerated.

AND

b. High risk for fracture as defined by meeting criterion i, ii, or iii below:

i. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5).

OR

ii. Current or history of fragility fracture.

OR

iii. Diagnosis of osteopenia (T-score between -1 and -2.5) and a history of glucocorticoid use for at least three months at a dose of 5 mg per day or higher of prednisone (or equivalent).

AND

C. One of the following criteria 1 or 2 below is met:

1. Step therapy with lower-cost alternatives has been ineffective, not tolerated or contraindicated as defined by at least one of the following:

a. The member has received at least three years of bisphosphonate therapy and remains at high risk for fracture.

OR

b. A bisphosphonate has been ineffective (e.g., a loss of BMD after at least 12 months of treatment or fracture while on treatment).

OR

c. Raloxifene was not effective after at least a 24-month treatment period, based on objective documentation (such as a reduction in T-score or fracture, despite 24-months of therapy).

OR

d. Bisphosphonates (both oral and IV) are documented as medically contraindicated, based on current medical literature and objective documentation (including, but not limited to, a creatinine clearance of less than 35 ml/minute).

OR

e. Bisphosphonates (both oral and IV) are not tolerated due to documented clinical side effects.
PLEASE NOTE: In patients with underlying GI issues, use of oral bisphosphonates may be contraindicated or not tolerated. However, use of an IV bisphosphonate must be trialed for above criterion to be met.

*IV bisphosphonates, such as zoledronic acid (generic Reclast), are available for coverage without pre-authorization.*

OR

2. The patient is at very high risk of fracture, defined as meeting one of the following criteria (a or b) below:
   a. A history of multiple fragility fractures.
   OR
   b. A bone mineral density that is 2.5 or more standard deviations below that of a “young normal” adult (T score at or below -2.5) and a history of fragility fracture.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers romosozumab (Evenity) coverable only under the medical benefit (as a provider-administered medication).

B. Regence Pharmacy Services considers abaloparatide (Tymlos) and teriparatide (Forteo, Bonsity) coverable only under the pharmacy benefit (as self-administered medications).

C. When pre-authorization is approved, anabolic bone medications will be authorized using the following dosing schedule for the cumulative lifetime approval duration listed below:

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Dosing schedule</th>
<th>Cumulative lifetime approval duration</th>
<th>Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abaloparatide (Tymlos)</td>
<td>Up to 30 doses (80 mcg per dose) per month (one prefilled pen [1.56 ml total] monthly)</td>
<td>Up to 24 months</td>
<td>Self</td>
</tr>
<tr>
<td>Teriparatide (Forteo, Bonsity)</td>
<td>Up to 28 doses (20 mcg per dose) per month (one prefilled pen [2.4ml total] monthly)</td>
<td>Up to 24 months</td>
<td>Self</td>
</tr>
<tr>
<td>Romosozumab (Evenity)</td>
<td>Up to one dose (210 mg per dose) per month (two prefilled pens [2.34 ml total] monthly)</td>
<td>Up to 12 months</td>
<td>Provider</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
D. When authorized, a maximum of 24 months of parathyroid hormone analogs (Tymlos, Forteo, Bonsity) medications will be approved as single agent (or in any combination). Romosozumab (Evenity) may be approved for a maximum of 12 months (as a single agent or in any combination). No further doses will be authorized beyond the cumulative lifetime approval duration listed above in Table 1.

E. Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met, and that the medication is effective.

IV. Use of anabolic bone medications beyond one treatment course or for higher doses (as listed in Table 1) is considered not medically necessary.

V. Use of anabolic bone medications is considered investigational when used for all other conditions, including but not limited to:
   A. Treatment of osteoporosis, other than listed in the coverage criteria above.
   B. Prevention of osteoporosis.
   C. To promote fracture healing.
   D. To promote post-fusion healing.
   E. Use in combination with denosumab (Prolia or Xgeva) or another anabolic bone medication (as listed in Table 1).
   F. Sequential use, after therapy completion with other anabolic bone medication (as listed in Table 1).

Position Statement

Summary

- The intent of this policy is to limit coverage of anabolic bone medications for the indications and doses for which they have been shown to be safe and effective in trials, as detailed in the coverage criteria, when lower-cost standard of care treatment alternatives are not effective or use is contraindicated or the patient is at very-high risk of fracture.

- Treatment decisions should be based on clinical information as well as intervention thresholds. When there is no demonstrated difference in safety or efficacy, the medication with the lowest cost often provides the best value for members.

- A T-score lower than -2.5 is diagnostic of osteoporosis. However, a non- or low-traumatic fracture (fragility fracture), is considered osteoporosis regardless of T-score. [1 2]

- Bisphosphonates (alendronate, risedronate, zoledronic acid, and ibandronate) for prevention of bone loss, regardless of cause, is the standard of care due to the body of evidence supporting efficacy and track record of safety. There are both oral and
injectable bisphosphonates available as low-cost generics. Bisphosphonates and raloxifene have been shown to increase bone mineral density and reduce the incidence of fractures in patients with osteoporosis. \[3-5\] Risedronate and alendronate have been shown to be well-tolerated out to at least five years of therapy.

There are many treatments for osteoporosis that are effective, have known long-term safety profiles, and are recommended by national treatment guidelines. Bisphosphonates represent the best value for the majority of patients.

There is insufficient evidence to establish that any of the parathyroid hormone analog medications in this policy (Tymlos, Forteo, Bonsity) are safer or more effective than one another. \[8\] Of these products, teriparatide (Forteo) and abaloparatide (Tymlos) are lower cost options. As such, teriparatide (Bonsity) is coverable only when these lower cost options are not a treatment option, as detailed in the coverage criteria.

In a comparative trial, teriparatide (Forteo, Bonsity) had a lower rate of fractures as compared to risedronate; however, most patients were previously treated with osteoporosis medications such that the treatment affect may have been altered. \[9\]

American Association of Clinical Endocrinologists (AACE) guidelines recommend that abaloparatide (Tymlos), denosumab (Prolia), romosozumab (Evenity), teriparatide (Forteo, Bonsity), and zoledronate as initial therapy for patients at very high fracture risk or for patients unable to use oral therapy. The definition for very high risk differs in Endocrine Society and AACE guidelines but both include patients with a T-score at or below -2.5 and a history of fracture, or a history of multiple fractures.\[8,10\]

The goal of therapy is to decrease osteoporotic fractures. However, there is insufficient evidence that one anabolic bone medication is superior to another or that bisphosphonates should be stopped after a “treatment course” and therapy changed to a different mechanism of action.

* The 2019 Endocrine Society Osteoporosis guidelines update and Agency for Healthcare Research and Quality (AHRQ) concluded that continuation of bisphosphonates after a three to five year treatment course reduces some measures of vertebral fractures in high risk patients.\[10,12\]

* Based on this data, the ES recommends continued treatment if the patient remains at high fracture risk (which include multiple spine fractures or hip/spine T-score < 2.5) after a three to five years of bisphosphonate therapy. However, the guideline does not specifically recommend switching mechanism of action for ongoing use beyond three to five years.\[10\] In addition, the guideline considers the risks associated with ongoing bisphosphonate therapy, such as ONJ, to outweigh the risks of stopping therapy in higher risk patients.\[10\]

* Patients with low-moderate fracture risk may consider a drug holiday, which is defined as a period of time when no osteoporosis medications are given.
**Clinical Efficacy**

**Abaloparatide (Tymlos)**

- The efficacy of abaloparatide (Tymlos) was demonstrated in a randomized controlled trial that compared abaloparatide (Tymlos) to placebo, as well as open-label teriparatide (Forteo, Bonsity), for 18 months of treatment in postmenopausal women. Patients in the pivotal trial of abaloparatide (Tymlos) in postmenopausal osteoporosis were required to have a T-score ≤ -2.5 and had a mean age of 68.8 years at baseline. [5]

* Abaloparatide (Tymlos) decreased the absolute risk of new vertebral fractures by 3.6% compared to placebo. New vertebral fractures occurred in 0.58% of participants in the abaloparatide (Tymlos) group and in 4.22% of those in the placebo group. [3 5]

* Although considered an exploratory endpoint, new vertebral fractures occurred in 0.84% of participants treated with teriparatide (Forteo, Bonsity). [5]

**Romosozumab (Evenity)**

- In clinical trials, romosozumab (Evenity) reduced the number of new vertebral fractures versus either placebo or alendronate alone in women with postmenopausal osteoporosis. [13 14]

- The efficacy and safety of romosozumab (Evenity) in reducing the risk of osteoporotic fractures in postmenopausal women has been confirmed by two large randomized controlled trials, one comparing romosozumab (Evenity) versus placebo for 12 months followed by each arm receiving sequential denosumab therapy for 12 months (FRAME) and the other comparing sequential therapy with romosozumab (Evenity) for 12 months followed by alendronate for 12 months versus 24 months of alendronate (ARCH). [13 14]

* At 24 months, new vertebral fractures occurred in 0.6% in the romosozumab (Evenity) group, as compared with 2.5% in the placebo group (representing a 75% lower risk with romosozumab). Though clinical fracture rates differed significantly at 12 months, it did not reach statistical significance at 24 months.[13]

* Over a period of 24 months, a 48% lower risk of new vertebral fractures was observed in the romosozumab-to-alendronate group than in the alendronate-to-alendronate group (6.2% vs 11.9%, respectively). At the time of the primary analysis, romosozumab (Evenity) followed by alendronate resulted in a 27% lower risk of clinical fracture and a 38% lower risk of hip fracture than alendronate alone. [14]

* There was one randomized-controlled trial comparing romosozumab (Evenity) versus teriparatide (Forteo, Bonsity) in postmenopausal women and one comparing romosozumab (Evenity) versus placebo in osteoporotic men that showed improved bone mass density in the romosozumab (Evenity) group but the quality of evidence of both studies was poor and applicability was limited.[15]
**Teriparatide (Forteo)**

- The efficacy and safety of teriparatide (Forteo) in reducing the risk of osteoporotic fractures in postmenopausal women has been confirmed by large randomized controlled trials. Patients treated in the pivotal trial of teriparatide (Forteo) in postmenopausal osteoporosis had a mean T-score of -2.6, a mean of 2.3 vertebral fractures, and a mean age of 69.5 years at baseline. [6 16 17]

- Teriparatide (Forteo) has been shown to reduce the risk of vertebral and non-vertebral fractures; however, it is unknown if teriparatide (Forteo) protects against hip fracture. Teriparatide (Forteo) increases bone mineral density (BMD) in the spine but has little effect on BMD in the hip or forearm. [3]

- Patients on teriparatide (Forteo) in a head-to-head trial comparing teriparatide (Forteo) to risedronate had a smaller number of radiographic vertebral fractures 5.4% vs 12% and clinical fractures than the risedronate group. However, there were no differences in pain, height, and health-related quality of life measures. Most patients had at least one prior osteoporosis therapy (median duration of previous bisphosphonate use 3.6 years). [18]

- When treatment with teriparatide (Forteo) is discontinued, bone density quickly declines the following year, although fracture reduction may persist for one to two years. It appears that continued antiresorptive therapy is necessary to maintain gains in BMD after withdrawal of teriparatide (Forteo). [6 7 19 20] Administration of alendronate following one year of teriparatide (Forteo) treatment has been shown to prevent this loss and in some cases will be associated with a further increase in BMD. Effect on fracture has not been evaluated. [21]

- Combination therapy using teriparatide (Forteo) and alendronate has not been shown to be more effective than monotherapy with either agent. [22]

**Guidelines** [1-3 10 23]

- Treatment for people at high risk for fracture is recommended by guidelines. [10] The definition of high risk includes:
  * A history of fracture of the hip or spine.
  * A bone mineral density in the osteoporosis range (T-score of -2.5 or lower).
  * A bone mineral density in the low bone mass or osteopenia range with a higher risk of fracture defined by a Fracture Risk Assessment Tool (FRAX) score for major osteoporotic fracture 10-year probability of 20% or higher OR Hip fracture 10-year probability 3% or higher.

- For patients who are at very high risk of fracture, initial therapy with denosumab or an anabolic agent may be considered. The Endocrine Society Guidelines define very high risk as those with severe osteoporosis (low T-score ≤ -2.5 and fractures) or multiple vertebral fractures.

- An injectable option [e.g., zoledronic acid, denosumab (Prolia), romosozumab (Evenity), abaloparatide (Tymlos), or teriparatide (Forteo, Bonytr)] is recommended for those with a prior fragility fracture or indicators of higher fracture risk (e.g., advanced age, frailty, glucocorticoids, very low T-scores, or increased fall risk); however, no one specific
injectable option is preferred over another. [8-10] Of the treatment options, generic zoledronic acid is the lowest cost treatment choice.

- The World Health Organization (WHO) algorithm (FRAX) was developed to calculate the 10-yr probability of a hip fracture and the 10-yr probability of any major osteoporotic fracture (defined as vertebral, hip, forearm, or humerus fracture) considering femoral neck BMD and the clinical risk factors. The WHO algorithm pertains only to previously untreated patients.[2]

- 2019 Endocrine Society Osteoporosis guideline recommend initial treatment with bisphosphonates (alendronate, risedronate, zoledronic acid, and ibandronate). They are available at low cost and have a long history of use. Denosumab and anabolic bone medications are considered alternative initial treatments for patients who are not candidates for a bisphosphonate or who have not had an adequate response to bisphosphonates.[24]

- The 2019 Endocrine Society Osteoporosis guideline and American Society for Bone and Mineral Research (ASBMR) recommend post-menopausal osteoporotic (PMO) women be evaluated for fracture risk after three to five years of bisphosphonates. [10]
  * Patients with low-moderate fracture risk may consider a drug holiday, which is defined as a period when no osteoporosis medications are given.
  * For patients with high risk (which include multiple spine fractures or hip/spine T-score <-2.5) osteoporosis treatment should be continued, as the benefits likely outweigh potential harms. Guidelines do NOT specifically suggest changing mechanism of action, such as stopping a bisphosphonate and use of denosumab (Prolia) or an anabolic bone medication, such as abaloparatide (Tymlos), teriparatide (Forteo), or romosozumab (Evenity).

- Endocrine Society guidelines also recommend dual-energy X-ray absorptiometry (DEXA) at the spine and hip every 1 to 3 years to assess the response to treatment. While there is uncertainty regarding what is considered an adequate response, guidelines state the stable or increasing BMD may indicate a good response. Switching treatments may also be considered in patients who experience a fracture. [10]

- There have not been adequate studies to evaluate the efficacy of switching to alternative therapies and the optimal duration of bisphosphonate therapy is unclear. However, sequential therapy with an antiresorptive agent (drug used to prevent further bone loss, such as a bisphosphonate) is recommended if continued treatment is warranted after completion of anabolic therapy.

Investigational Uses

- Bone healing: There are no clinical trials to support the use of abaloparatide (Tymlos), romosozumab (Evenity), or teriparatide (Forteo) for bone healing. Although there is promising animal data and a few published case reports, osteoanabolic agents have not been proven in published clinical trials to be effective or safe for fracture healing (these types of high-quality studies are “randomized,” “double-blinded,” and “controlled” and involve large treatment groups). There is no evidence to support the use of abaloparatide (Tymlos), romosozumab (Evenity) for any other indications, including for the prevention of postmenopausal osteoporosis, use in pre-menopausal osteoporosis or osteoporosis in men.
Combination therapy: There is insufficient evidence to establish the safety and efficacy of combination of anabolic bone medications [including denosumab (Prolia)] or use of anabolic bone medications after completion of a course of therapy.

* The evidence for combination use is limited to one small trial in post-menopausal women (n=94) on teriparatide with denosumab. Although the combination resulted in a larger increase in BMD than either agent alone, the effect on fractures is unknown (no data). [11 25]

* Combination therapy substantially raises the cost and potential for side effects. Until the effect of combination therapy on fracture is better understood, AACE does not recommend concomitant use of these agents. [3 25]

Safety

Romosozumab (Evenity)
- Unlike with other anabolic bone medications, there is a boxed warning for potential risk of major adverse cardiovascular events, including myocardial infarction, stroke, and cardiovascular death with romosozumab (Evenity). In a clinical trial comparing romosozumab (Evenity) to alendronate, patients in the romosozumab (Evenity) arm had a 1.3 times higher likelihood of a serious cardiovascular events than patients in the alendronate arm. Romosozumab (Evenity) should not be initiated in patients who have had a myocardial infarction or stroke within the preceding year.

Teriparatide (Forteo, Bonsity) and abaloparatide (Tymlos)
- Due to the potential risk of osteosarcoma, cumulative use of abaloparatide (Tymlos) and teriparatide (Forteo, Bonsity) for more than 2 years is not recommended.
- Both abaloparatide (Tymlos) and teriparatide (Forteo, Bonsity) have a boxed warning for an increased incidence of osteosarcoma. A dose- and treatment duration-dependent risk was observed in rats. Abaloparatide (Tymlos) or teriparatide (Forteo) should not be prescribed to patients at increased risk for osteosarcoma including those with Paget's disease of bone, patients with previous radiation therapy, and patients with bone metastases or skeletal malignancies.

Dosing
- Abaloparatide (Tymlos) may be covered for up to 24-months, given as 80 mcg daily, the dose studied in clinical trials. The safety and efficacy of higher doses or durations longer than 24 months have not been established.
- Romosozumab (Evenity) may be covered for up to 12-months, given as 210 mg every month, the dose studied in clinical trials. The safety and effectiveness of higher doses have not been established. In clinical trials, the efficacy of romosozumab (Evenity) waned after 12 months.
- Teriparatide (Forteo) may be covered for up to 24-months, given as 20 mcg daily, the dose studied in clinical trials. The safety and efficacy of higher doses or durations longer than 24 months have not been established.
Cross References

| Bone Density Studies rad2, Medical Policy Manual, TRGMPM – Radiology |
| Prolia, denosumab, Medication Policy Manual, Policy No dru223 |
| Site of Care Review, Medication Policy Manual, Policy No. dru408 |
| Xgeva, denosumab, Medication Policy Manual, Policy No dru393 |

Codes

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References


**Revision History**

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<th>Revision Summary</th>
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| 10/15/2021    | • Reformatted Section B of policy coverage criteria to list each product separately.  
|               | • Updated criteria to bypass step therapy requirements for patients at very high risk of fracture (T-score at or below -2.5 and a history of fragility fractures, or multiple fragility fractures). |
| 4/21/2021     | Updated not medically necessary uses to include requests for dosing higher that those listed in Table 1. No change to intent. |
| 10/28/2020    | • Added COT criteria  
|               | • Revised definition of ineffectiveness for bisphosphonates |
| 10/23/2019    | • New combination policy replacing individual medication coverage policies for Tymlos (dru514), Forteo (dru085), and Evenity (dru594). Added new teriparatide product (Bonsity) to policy. (effective 1/1/2020).  
|               | • Limits coverage of Tymlos and Evenity to postmenopausal osteoporosis when alternative treatment options are not effective, the setting in which they were studied and have labeled indications.  
|               | • Forteo and Bonsity are limited to osteoporosis OR patients at high risk for osteoporosis, when alternative treatments are not effective. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru616

Topic: Zilretta, triamcinolone acetonide extended-release (ER) injectable suspension

Date of Origin: May 1, 2020

Committee Approval Date: October 15, 2021

Next Review Date: December 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Tiamcinolone acetonide ER suspension (Zilretta) is a steroid that is injected directly into the knee joint to help improve pain associated with osteoarthritis of the knee.
Policy/Criteria

I. **Continuation of therapy (COT):** Triamcinolone acetonide ER (Zilretta) may be considered medically necessary for COT when full policy criteria below are met.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

New starts (treatment-naïve patients):

II. Triamcinolone acetonide ER (Zilretta) is considered not medically necessary for osteoarthritis of the knee.

III. Triamcinolone acetonide ER (Zilretta) is considered investigational when used for all other conditions, including but not limited to:

   A. Rheumatoid arthritis.

Position Statement

Summary

- Triamcinolone acetonide extended-release (ER) (Zilretta) is an intra-articular corticosteroid, injected directly into the knee joint, and has been studied and approved to reduce the pain associated with osteoarthritis (OA) of the knee.

- The intent of the policy is to offer members the best value IA steroids for OA of the knee.

- There is no evidence that triamcinolone acetonide ER (Zilretta) is safer or more effective than generic IA steroids, such as triamcinolone acetonide immediate-release (IR) (generic Kenalog) for osteoarthritis. However, triamcinolone acetonide ER (Zilretta) is significantly more costly than various generic IA steroids (including methylprednisolone and triamcinolone IR). Therefore, the use of triamcinolone acetonide ER (Zilretta) for OA of the knee is considered not medically necessary.

- IA steroids are used for various other indications, such as rheumatoid arthritis, synovitis, or OA in other joints (such as the knee or shoulder). However, there are no trials of triamcinolone ER (Zilretta) in any other conditions. Therefore, the use of triamcinolone ER (Zilretta) in any condition other than OA of the knee is considered investigational.

- All IA steroids have steroid-related adverse events due to their mechanism of action. Intraarticular steroid use may increase risks of post-injection flares, skin or fat changes, cartilage damage, and transient increase in blood glucose.[1]

- There is interest in the use of triamcinolone acetonide ER (Zilretta) for patients with concomitant diabetes and osteoarthritis of the knee. However, there is inclusive evidence that triamcinolone acetonide ER (Zilretta) is safer than other available triamcinolone acetonide formulations.[2-3] Increases in blood glucose are transient. Therefore, the use of triamcinolone ER (Zilretta) for patients with diabetes is not medically necessary.
Clinical Efficacy \cite{1,2}

- The evidence supporting efficacy of triamcinolone acetonide ER (Zilretta) for improving pain associated with OA of the knee is based primarily on one pivotal randomized control trial that compared one injection of triamcinolone acetonide ER (Zilretta) to placebo or triamcinolone IR.

* After 12 weeks, there was a marginal improvement in average daily pain (ADP) score with patients who received triamcinolone acetonide ER (Zilretta) versus those who received placebo.

* Triamcinolone extended-release (Zilretta) showed no added benefit over triamcinolone immediate-release for OA of the knee.

Investigational Uses

- There are no published clinical trials evaluating the safety or efficacy of triamcinolone ER (Zilretta) in any other indications aside from OA of the knee, for the treatment of rheumatoid arthritis.

Safety

- There is no evidence that triamcinolone extended-release (Zilretta) is safer than triamcinolone immediate-release.

- Overall adverse event rates were comparable in the triamcinolone acetonide ER (Zilretta) and the triamcinolone IR arms of the pivotal efficacy study but the incidence of arthralgia and worsening of knee pain were higher in the triamcinolone acetonide ER (Zilretta) arm. Diabetics with uncontrolled blood sugars were excluded from the study.\cite{2}

- Evidence for use in diabetic patients is limited to a single, small (N=33) parallel group study\cite{3} comparing use of triamcinolone acetonide ER (Zilretta) versus triamcinolone acetonide immediate-release in diabetic patients with OA of the knee. These patients were on one to two oral medications and not managed on injectables; they had a hemoglobin A1c level of 6.5 to 9.0% at baseline.

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Revision History

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<td>10/15/2021</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru620

Topic: Products with Therapeutically Equivalent Biosimilars/Reference Products:
- Bevacizumab
- Infliximab
- Rituximab
- Trastuzumab

Date of Origin: July 1, 2020

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: July 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

A biosimilar is a type of biologic drug that is highly similar to it an FDA-approved biologic drug, known as the reference product. Biosimilars provide equivalent clinical benefit to the original reference product (“therapeutically equivalent”).

PLEASE NOTE: This policy and the coverage criteria below do not apply to preferred brands of bevacizumab, rituximab, and trastuzumab (as listed in Table 1) as they do not require pre-authorization; however, all brands of infliximab are subject to Site of Care review.
Policy/Criteria

I. **Continuation of therapy (COT):** Non-preferred products (as listed in Table I) may be considered medically necessary for COT when full policy criteria below are met, including Site of care administration requirements (see below).

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Non-preferred products (as listed in Table I) may be considered medically necessary when criteria A and B below are met:

A. One of the following criteria below is met (1 or 2):
   1. There is a documented intolerance or contraindication to all preferred product(s) (as listed in Table I).
   
   OR
   
   2. **For infliximab non-preferred products only:** There is a documented loss of effectiveness with use of the preferred infliximab product (as listed in Table 1), defined as clinical documentation of both of the following (a and b):
      a. The patient was clinically stable on the requested non-preferred infliximab product PRIOR to changing to the preferred infliximab product.
      
      AND
      
      b. An adequate trial of the preferred infliximab product was ineffective, defined as worsening or return of underlying disease symptoms while using the preferred brand of infliximab as compared to disease control while using the non-preferred brand of infliximab.

   AND

B. **For infliximab only (all products):** Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408].
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a Specified preferred products are not subject to pre-authorization (PA)
b All infliximab products are subject to Site of Care criteria review.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers the following products coverable only under the medical benefit (as provider-administered medications).
   1. Bevacizumab
   2. Rituximab
   3. Trastuzumab
   4. Infliximab

B. When pre-authorization for infliximab is approved, the following quantity limitations will apply: Up to 14 infusions in a 12-month period the first year, then up to 13 infusions annually thereafter.

C. Authorization may be reviewed at least every 6 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement

Summary
- The intent of this policy is to cover non-preferred products only when preferred products are not a treatment option.
- FDA-approved biosimilar medications are clinically not meaningfully different than their reference products, also called “therapeutically equivalent.” Although small differences in clinically inactive portions of the molecule may exist, the FDA approval certifies that the manufacturer has shown their product to be identical in function. [1] There is no scientific basis to prefer one FDA-approved product over another; given similar efficacy and safety, most contracts consider more costly products not medically necessary.
- FDA-approved biosimilars offer a less costly alternative that is just as effective as the reference product.
  * There is no evidence that any one bevacizumab, infliximab, rituximab, or trastuzumab product is safer or more effective than another, including subcutaneous (SC) products versus intravenous (IV) products.
  * Preferred products: Among these products, currently the preferred products (as listed in Table 1) provide the best value for health plan members.
  * Non-preferred products: Products NOT listed as “preferred,” whether biosimilars and/or reference products, are considered “non-preferred” and not coverable, unless coverage criteria are met (as listed in Table 1). Although biosimilars offer a lower overall cost for care, the pricing between individual products is variable and the lowest net cost products are available for coverage.

- For cancer indications: National guidelines published by NCCN have endorsed FDA approved biosimilars as appropriate for all relevant indications. [2] The available peer reviewed data has demonstrated that FDA-approved biosimilars are not meaningfully different from reference products in terms of efficacy, safety, or immunogenicity.
For Clinical Trials: Coverage of services for members enrolled in clinical trials is provided consistent with current standards of care. FDA approved biosimilars are not clinically different from reference products. Biosimilars are current standard of care and have been endorsed by national guidelines such as NCCN. Reference products which are more costly than preferred biosimilars may be provided by study sponsors.

Hospitals and health-systems have medication formularies developed independent of the health plan. The health plan is unable to cover more expensive products for the convenience of the hospital, health-system, provider, or member. Preferred biosimilar products represent the lowest cost to members and the health plan; the use of more expensive products without evidence of superior efficacy or safety is not medically necessary per the member’s contract.

Infliximab:
- There are several available biosimilars to Remicade (infliximab) (as listed in Table 1).
- Infliximab has been used to treat a variety of inflammatory conditions.
- Inflectra (infliximab-dyyb), the health plan preferred brand of infliximab, has the same FDA-approved indications as Remicade (infliximab). However, the intent of this policy is to provide coverage for the best value infliximab product for health plan members, independent of indication of use.
- Infliximab is coverable for up to 14 infusions in a 12-month period in the first-year, based on a usual induction regimen of 5 mg/kg at weeks 0, 2 and 6 followed by a usual starting maintenance regimen of 5 mg/kg every 8 weeks thereafter, but may increase to 10 mg/kg up to every 4 weeks (up to 13 infusions per year). [3]

Subcutaneous (SC) formulations: Rituxan Hycela and Herceptin Hylecta [2-6]
- Rituximab for IV infusion and trastuzumab for IV infusion, the “reference product” to the SC formulation, have been available for many years with proven efficacy and safety in their respective cancer indications and the preferred products do not require pre-authorization.
- Rituximab SC (Rituxan Hycela) and trastuzumab/hyaluronidase SC (Herceptin Hylecta) are subcutaneous formulations for injection under the skin with hyaluronidase. Hyaluronidase is used to facilitate a large volume SC injection and allows for a faster rate of dose administration (versus traditional IV infusion).
- Both these SC products were FDA-approved based on non-inferiority to the IV formulation in pharmacokinetic studies in patients with cancer [Rituxan Hycela in follicular lymphoma (FL), diffuse large B-cell lymphoma (DLBCL), and chronic lymphocytic leukemia (CLL) and Herceptin Hylecta in HER2+ breast cancer].
- The NCCN guidelines recognize trastuzumab IV, biosimilar, and trastuzumab/hyaluronidase SC (Herceptin Hylecta) as a treatment option for HER2-positive breast cancers where trastuzumab is recommended. Likewise, NCCN recognizes rituximab IV, biosimilar, and rituximab/hyaluronidase SC as a treatment option for various B-cell lymphomas, including follicular lymphoma, diffuse large B-cell lymphoma, and chronic lymphocytic leukemia, where rituximab is recommended.
### Cross References

- BlueCross BlueShield Association Medical Policy, 5.01.12; Trastuzumab [September 2021]
- BlueCross Blue Shield Association Medical Policy, 5.01.15 Off Label Use of Infliximab [April 2021]
- Site of Care Review, Medication Policy Manual, Policy No. dru408
- Drugs for chronic inflammatory diseases, Medication Policy Manual, Policy No. dru444
- Provider-administered drugs for chronic inflammatory diseases (for UMP plans), Medication Policy Manual, Policy No. dru900
- BlueCross BlueShield Association Medical Policy, 5.01.24 Nononcologic Uses of Rituximab [November 2021]
- BlueCross BlueShield Association Medical Policy, 2.03.05 - Uses of Monoclonal Antibodies for the Treatment of Non-Hodgkin Lymphoma [November 2021]

### Codes

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References


These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
### Revision History

<table>
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| 6/17/2022     | • Added new bevacizumab product to policy as non-preferred: Alymsys (bevacizumab-maly).  
• Modified criteria wording, for operational clarity (no change to intent of the criteria with this annual update).  
• Reformatted product table, to delineate the preferred/non-preferred and reference product/biosimilar.  
• Removed Quantity Limits. |
| 10/15/2021    | • Retitled policy to “Products with Therapeutically Equivalent Biosimilars/Reference Products”  
• Added infliximab (Janssen) to policy as non-preferred |
| 8/25/2021     | • Added infliximab products to policy, including Site of Care requirements. |
| 4/21/2021     | • Added subcutaneous products to policy as non-preferred: Rituxan Hycela (rituximab, hyaluronidase), Herceptin Hylecta (trastuzumab, hyaluronidase-oysk)  
• Updated position statement. |
| 1/20/2021     | • Added new rituximab product to policy as non-preferred: Riabni (rituximab-arrx)  
• Updated position statement. |
| 6/9/2020      | Added HCPCS code for Ruxience (rituximab-pvvr) |
| 4/22/2020     | Added rituximab to policy. |
| 1/22/2020     | New policy (effective 7/1/2020). Limits coverage to patients who have an intolerance or contraindication to a preferred product. |

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru621

Topic: Intravitreal Vascular Endothelial Growth Factor (VEGF) Inhibitors:
- Beovu, brolucizumab
- Byooviz, ranibizumab-nuna
- Eylea, aflibercept
- Lucentis, ranibizumab
- Susvimo, ranibizumab injection via ocular implant
- Vabysmo, faricimab-svoa

Date of Origin: February 15, 2020

Committee Approval Date: March 18, 2022

Effective Date: April 15, 2022

Next Review Date: March 2023

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
The medications in this policy are all inhibitors of vascular endothelial growth factor (VEGF), which prevent the formation of new blood vessels. They are injected directly into the eye (intravitreal) to treat a variety of eye conditions, by reducing swelling (blood vessel leakage and inflammation). Susvimo is a newer formulation that delivers ranibizumab injection via ocular implant.
**Policy/Criteria**

Most contracts require pre-authorization approval of intravitreal vascular endothelial growth factor (VEGF) inhibitors prior to coverage.

**I. Continuation of therapy (COT):** Intravitreal vascular endothelial growth factor (VEGF) inhibitors may be considered medically necessary for COT when criterion A or B below is met.

A. Both of the following:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   
   **AND**
   
   2. *For ranibizumab (Lucentis and Susvimo) only:* Treatment with Byooviz (ranibizumab-nuna) was ineffective, not tolerated, or use is contraindicated.

**OR**

B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

**II. New starts (treatment-naïve patients):** Intravitreal VEGF inhibitors may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met:

A. *For all requests:* Step therapy with bevacizumab, with documentation that criterion 1 or 2 below is met:
   
   1. Treatment with bevacizumab was ineffective when used in the eye, unless use is contraindicated.

   **OR**
   
   2. There is evidence from the last 90 days in the patient’s medical claim history that the patient has used bevacizumab.

   **AND**
   
   B. *For higher-cost VGEF options only:* Documentation that criterion 1 or 2 below is met:
   
   1. *Eylea (aflibercept), Beovu (brolucizumab), Lucentis (ranibizumab) only:*
      
      a. Treatment with Byooviz (ranibizumab-nuna) was ineffective, not tolerated, or use is contraindicated.
OR
b. There is evidence from the last 90 days in the patient’s medical claim history that the patient has used Byooviz (ranibizumab-nuna).

OR
2. Susvimo (ranibizumab) and Vabysmo (faricimab-svoa) only:
   a. Treatment with Byooviz (ranibizumab-nuna) AND Lucentis (ranibizumab) was ineffective, not tolerated, or use is contraindicated.
   OR
b. There is evidence from the last 90 days in the patient’s medical claim history that the patient has used Byooviz (ranibizumab-nuna) AND Lucentis (ranibizumab).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers intravitreal VEGF inhibitors coverable only under the medical benefit (as provider-administered medications).
B. Authorization may be reviewed annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement
- The intent of this policy is to cover higher cost branded VEGF inhibitors when both lower cost options, bevacizumab and biosimilar Byooviz (ranibizumab-nuna), are ineffective or not a treatment option, as detailed in the coverage criteria.
- Bevacizumab is the lowest cost VEGF inhibitor for the treatment of ocular conditions and therefore does not require pre-authorization (PA) for ocular conditions.
- Although intravitreal VEGF inhibitors have different indications, they have demonstrated evidence of efficacy for maintaining or improving visual acuity across various retinal disorders in clinical trials.
- Intravitreal VEGF inhibitors all work using the same mechanism of action by binding to the receptor binding site of active forms of VEGF-A. Likely because of similarities in mechanism of action, studies have not been able to demonstrate that one product is superior to another in efficacy or safety.
- Recently approved Vabysmo (faricimab-svoa) works by inhibiting both VEGF-A and angiopoietin-2 (Ang-2). However, per the FDA labeling, the contribution of Ang-2 inhibition to treatment effect remains unknown at this time. [1]
Evidence-based recommendations and clinical guidelines do not differentiate the VEGF inhibitors in clinical practice recommendations. Evidence-based recommendations and clinical guidelines equally recommend the use of VEGF inhibitors, including bevacizumab, for the treatment of neovascular (wet) age-related macular degeneration (wAMD), macular edema secondary to retinal vein occlusion (RVO), and diabetic macular edema (DME; including diabetic retinopathy associated with DME).

- Lucentis (ranibizumab) has been studied in other vascular-related ocular conditions. The clinical benefit of Lucentis (ranibizumab) in these indications is uncertain to date.

- There are currently three brands of intravitreal ranibizumab: Lucentis, Byooviz, and Susvimo. However, there is no evidence that any one ranibizumab product is safer or more effective than another ranibizumab product.

  * Ranibizumab injection via ocular implant (Susvimo) is a long-acting formulation of ranibizumab. Susvimo consists of a small surgically implanted “port” that releases ranibizumab continually for up to six months, at which time the port is refilled. In clinical trials, ranibizumab injection via ocular implant (Susvimo) was non-inferior to ranibizumab intravitreal injection (Lucentis). However, there was a temporary drop in visual acuity and increase in ocular adverse events with ranibizumab injection via ocular implant (Susvimo).

  * Byooviz (ranibizumab-nuna) is an FDA-approved biosimilar to Lucentis (ranibizumab). Biosimilars offer a less costly and equally effective alternative to the reference product, ranibizumab intravitreal injection (Lucentis), as well as lower cost than ranibizumab injection via ocular implant (Susvimo). FDA-approved biosimilar medications are clinically not meaningfully different than their reference products, also called “therapeutically equivalent.” Although small differences in clinically inactive portions of the molecule may exist, the FDA approval certifies that the manufacturer has shown their product to be identical in function. There is no scientific basis to clinically prefer one FDA-approved product over another; given similar efficacy and safety, most contracts consider more costly products not medically necessary.

- Previous concerns over the use of compounded or repackaged products, such as bevacizumab, have been alleviated by the FDA’s 2013 Drug Quality and Security Act, which provides better oversight of compounding pharmacies. In addition, the American Society of Retina Specialists has published online safety information about compounding pharmacies to help retina specialists choose high-quality providers of bevacizumab. Furthermore, in February 2015 the FDA issued Draft Guidance regarding drug compounding and repackaging of biologics to further standardize quality of bevacizumab. [2-4]

**Clinical Efficacy**

*Neovascular (wet) Age-related Macular Degeneration (AMD)*

- Intravitreal VEGF inhibitors have similar effectiveness for wet AMD. They all have been shown to maintain or improve vision based clinical trials. Systematic reviews have concluded that the comparators have similar efficacy.
* One high-quality systematic review of Avastin (bevacizumab) in the treatment of wAMD concluded that it improves visual acuity and central retinal thickness (moderate correlate to visual acuity) and is more effective than photodynamic therapy (without verteporfin). [5]

* A 2019 systematic review of VEGF inhibitors in wAMD concluded that there were no major differences with respect to vision related outcomes comparing Lucentis (ranibizumab) and Avastin (bevacizumab) after one year of treatment. Of note, the review did not include any trials with Eylea (aflibercept) or Beovu (brolucizumab). [6]

* A 2016 systematic review focusing on Eylea (aflibercept) concluded that intravitreal aflibercept has similar efficacy to Lucentis (ranibizumab) in terms of improvement and stability in visual acuity after one and two years of treatment. [7]

* Beovu (brolucizumab) was evaluated in two phase 3 randomized, controlled trials: HAWK and HARRIER. Both studies had nearly identical designs and endpoints. Results demonstrated the brolucizumab was non-inferior to aflibercept for maintaining visual acuity. [8]

- The American Academy of Ophthalmology (AAO) guidelines state that in patients with wAMD, intravitreal injection therapy using VGEF inhibitors are the most effective way to manage wAMD and represents the first line of treatment. Guidelines include Eylea (aflibercept), Avastin (bevacizumab), Lucentis (ranibizumab), and Beovu (brolucizumab) for the treatment of wet AMD. The AAO does not recommend the use of Macugen (pegaptanib) in the treatment of wAMD due to evidence indicating that it does not improve visual acuity on average in patients with new onset wAMD unlike other currently available VEGF inhibitors. [9] The guidelines have not been updated since the approval of Vabysmo (faricimab-svoa).

**Diabetic Macular Edema (DME)**

- There is moderate certainty that VEGF inhibitors improve visual acuity in patients with DME; however, there is insufficient evidence to demonstrate that one VEGF inhibitor is clinically superior to another in the treatment of DME based on one high-quality systematic review and one government-sponsored comparative study.

* A Cochrane systematic review (2018) concluded that Eylea (aflibercept), Avastin (bevacizumab), and Lucentis (ranibizumab) are more effective than laser photocoagulation in improving visual acuity (i.e., likelihood of gaining three or more lines of vision). Although there were no significant sub-group differences in visual acuity between the VEGF inhibitors, there was insufficient power to detect a difference between them. [10]

* A government-sponsored trial evaluated mean improvement in visual acuity for up to two years in patients with DME treated with Eylea (aflibercept), Avastin (bevacizumab) or Lucentis (ranibizumab) using an as needed dosing regimen. [11][12] The trial concluded that there was no clinically meaningful difference in improvement in visual acuity in the overall DME population.
- It was noted that Eylea (aflibercept) was modestly more effective (approximate mean improvement of 6 letters) at improving visual acuity relative to the other VEGF inhibitors in a subset of patients with lower baseline visual acuity at the 1- and 2-year follow-up; however, there was low confidence in the trial results due to an imbalance in concomitant treatment between study arms, potential for bias as investigators were not blinded to treatment, and the reduced number of doses given to patients in the Avastin (bevacizumab) and Lucentis (ranibizumab) arms than would otherwise have been given if a fixed dose regimen was used.

- More recently, a new formulation of Susvimo (ranibizumab) was approved for delivery of ranibizumab injection via an implanted port. Clinical trials of ranibizumab via ocular implant (Susvimo) demonstrated comparable efficacy results to ranibizumab intravitreal injections (Lucentis); however, the implant was associated with a higher incidence of adverse events, including a 3-fold higher rate of endophthalmitis. The clinical efficacy and safety of ranibizumab via ocular implant (Susvimo) was assessed in one randomized, visual assessor-masked, non-inferiority trial (Archway; n=415). [13]

  * Patients diagnosed with wAMD within the nine months prior to screening and received at least three doses of intravitreal VEGF inhibitors. Only VEGF responders were included in the trial.

  * Patients were randomized to ranibizumab via ocular implant (Susvimo) with refills every 24 weeks or ranibizumab intravitreal injections (Lucentis) every 4 weeks.

  * The primary efficacy endpoint was the change from baseline in Best Corrected Visual Acuity (BCVA) score averaged over week 36 and 40.

  * Efficacy of ranibizumab via ocular implant (Susvimo) was noninferior to ranibizumab intravitreal injections (Lucentis) with a change from baseline BCVA of +0.2 and +0.5, respectively at 36-40 weeks [difference of -0.3 (CI -1.7 to 1.1) meeting non-inferiority].

  * However, the trial was relatively short, given the chronic progressive nature of wAMD. Therefore, the durability of the treatment effect is unknown.

  * Of note, patients treated with the ranibizumab via ocular implant (Susvimo) experienced a transient and reversible postsurgical drop in visual acuity, as measured by Early Treatment Diabetic Retinopathy Study Letters (ETDRS), after implant insertion, with vision returning to baseline by week 8.

  * In addition, safety concerns inherent to an ocular implant may limit the utility of ranibizumab via ocular implant (Susvimo) (see Safety section below for additional details).

- The American Academy of Ophthalmology guidelines support the use of VEGF inhibitors, including Lucentis (ranibizumab), Eylea (aflibercept), and Avastin (bevacizumab) in the treatment of DME (including diabetic retinopathy associated with DME). [14]
* AAO recommendations were based on trials comparing Eylea (aflibercept), Avastin (bevacizumab), and Lucentis (ranibizumab) to focal laser treatment (READ-2, BOLT, AND DA VINICI studies, respectively). All trials showed that treatment with VEGF inhibitors resulted in statistically and clinically significant improvements in visual acuity in patients with DME after one to two years of treatment compared to laser treatment.

* In the BOLT study, Avastin (bevacizumab) was also shown to reduce the level of severity of diabetic retinopathy in patients with DME over the 12-month treatment period whereas the severity remained relatively stable in patients who received laser therapy. [15]

* The guidelines have not been updated since the availability of ranibizumab injection via ocular implant (Susvimo) or Vabysmo (faricimab-svoa).

**Diabetic Retinopathy (without DME)**

- Treatment with Lucentis (ranibizumab) demonstrated efficacy in the treatment of diabetic retinopathy without diabetic macular edema in the NIH-funded Diabetic Retinopathy Clinical Research Network Study. [16][17] The study compared Lucentis (ranibizumab) to panretinal laser therapy in patients with diabetic retinopathy, and found that patients both with and without diabetic macular edema had improved short-term and 2-year outcomes with Lucentis (ranibizumab) compared to panretinal or scatter photocoagulation laser therapy. [16]

- The American Academy of Ophthalmology guidelines support the use of VEGF inhibitors, including Lucentis (ranibizumab), Eylea (aflibercept), and Avastin (bevacizumab) in the treatment of DME (including diabetic retinopathy associated with DME). [14] [See Diabetic Macular Edema above, for details]

- Trials are ongoing for the use of Beovu (brolucizumab) in diabetic retinopathy. [18]

**Retinal Vein Occlusion**

- There is moderate certainty that VEGF inhibitors [Eylea (aflibercept), Avastin (bevacizumab), Macugen (pegaptanib), and Lucentis (ranibizumab)] are more effective than sham injection or laser therapy in maintaining or improving visual acuity in patients with macular edema secondary to RVO (branch and central; BRVO, CRVO) based on two Cochrane systematic reviews (2020); however, there is insufficient evidence to demonstrate that one VEGF inhibitor is clinically superior to another due to the lack of direct comparative evidence. [19][20]

- More recently, one non-inferiority LEAVO trial evaluated Lucentis (ranibizumab), Eylea (aflibercept), or bevacizumab in patients with CRVO (n = 463). [21] The pre-defined null hypothesis that Eylea (aflibercept) and bevacizumab are each inferior to Lucentis (ranibizumab), tested with a non-inferiority margin of −5 visual acuity letters over 100 weeks. The study demonstrated that Eylea (aflibercept) was non-inferior to Lucentis (ranibizumab), but not superior. However, the study was unable to demonstrate non-inferiority of bevacizumab to Lucentis (ranibizumab). Therefore, the aforementioned conclusion remains unchanged: there is insufficient evidence to demonstrate that one VEGF inhibitor is clinically superior to another due to the lack of direct comparative evidence.
Evidence-based recommendations from UpToDate, the American Academy of Ophthalmology, and the Centers for Medicare and Medicaid Services support the use of VEGF inhibitors [Eylea (aflibercept), Avastin (bevacizumab), and Lucentis (ranibizumab)] for the treatment of macular edema secondary to retinal vein occlusion. [22-24]

**Myopic Choroidal Neovascularization (mCNV)**

- A Cochrane systematic review (2016) concluded that there is low-to-moderate certainty evidence for the efficacy of VEGF inhibitors to treat mCNV at one year and two years. [25] The authors also concluded that Lucentis (ranibizumab) and Avastin (bevacizumab) are equivalent in terms of efficacy in the treatment of patients with mCNV.

- Trials are ongoing for the use of Beovu (brolucizumab) in mCNV. [18]

**Other Uses**

- The use of any VEGF inhibitor in conjunction with other VEGF inhibitors is considered investigational as there is no evidence evaluating the efficacy or safety of combination therapy.

- Trials of Eylea (aflibercept) in a variety of other conditions such as radiation retinopathy, central serous chorioretinopathy, and pathologic myopia are ongoing and are considered investigational due to lack of published, high quality data.

- Published data evaluating Lucentis (ranibizumab) in several other conditions is preliminary. Larger well-controlled trials are needed to determine the clinical benefit of Lucentis (ranibizumab) in these conditions.

  * One study in 37 patients with retinal angiomatous proliferation evaluated Lucentis (ranibizumab) alone, and either Lucentis (ranibizumab) or intravitreal triamcinolone plus photodynamic therapy. Disease stabilization occurred in all three groups; however, a trend toward better visual acuity and anatomic restoration occurred in the triamcinolone/photodynamic therapy group. These results were confirmed at 3 years. [26 27]

  * A single-center pilot study in 10 patients with primary pterygia evaluated the tolerability of Lucentis (ranibizumab) either prior to surgery or at the time of surgery. [28]

  * A single-center pilot study in 10 patients undergoing trabeculectomy evaluated Lucentis (ranibizumab) to assist in wound healing when given with topical mitomycin C. [29]

  * Lucentis (ranibizumab) was evaluated versus photodynamic therapy in a single-center pilot study in 16 patients with chronic central serous chorioretinopathy. [30]

**Safety** [31]

- Intravitreal VEGF inhibitors have been associated with inflammation, blurred vision, corneal edema, eye discharge and irritation, and hypertension. However, a 2016 Cochrane review that concluded that neither Eylea (aflibercept) or Lucentis (ranibizumab) drug produces a greater incidence of systemic or vision-threatening complications. [7]
- Additional serious adverse effects reported with intravitreous VEGF inhibitors include endophthalmitis, retinal detachment, and iatrogenic traumatic cataract. After injection, patients should be advised to seek immediate care if the treated eye becomes red, painful, sensitive to light, or they notice a change in vision.

- Although Lucentis (ranibizumab) has sufficient clinical safety experience, experience with the implant formulation of Susvimo (ranibizumab) is limited. In clinical trials, ranibizumab injection via ocular implant (Susvimo) was associated with a higher incidence of adverse events compared to monthly intravitreal injections of Lucentis (ranibizumab), including a three-fold higher rate of endophthalmitis. In addition, the ranibizumab injection via ocular implant (Susvimo) and/or implant-related procedures have been associated with infection, hemorrhage, retinal detachment, implant dislocation, and decrease in visual acuity. [32]

- Cardiovascular (CV) safety: A meta-analysis evaluating the CV safety of intravitreal VEGF inhibitors in patients with wet AMD, DME, or RVO concluded that VEGF inhibitors, specifically Avastin (bevacizumab) and Lucentis (ranibizumab), are not associated with a significant increase in risk of systemic CV and hemorrhagic events or in overall mortality, stroke, or CV mortality in elderly patients. However, the studies and meta-analysis were not sufficiently powered to correctly assess these risks. [33]

- Comparative safety: The trial conducted by the CATT research group comparing Lucentis (ranibizumab) to Avastin (bevacizumab) for the treatment of wet AMD found the following regarding safety; [16 17]

  * A statistically significant difference was seen at 52 weeks in the rates of serious systemic adverse events between the Lucentis (ranibizumab) and Avastin (bevacizumab) groups (19.0% vs 24.1%, P = 0.04).

  * A significant difference was also seen at 2 years [39.9% Avastin (bevacizumab) vs 31.7% Lucentis (ranibizumab); adjusted risk ratio 1.30; 95% CI: 1.07, 1.57; P = 0.009].

  * This difference was largely due to hospitalizations for infections such as pneumonia and urinary tract infections. It is uncertain if these events were related to either medication.

- Compounded VGEF - Avastin (bevacizumab) is listed in national treatment guidelines and is recognized by the Centers for Medicare and Medicaid Services as a safe and effective treatment option for wet AMD, DME, and RVO. [12]

  * Avastin (bevacizumab), when used in the eye, must be extemporaneously compounded to achieve the appropriate dose. In 2011, a group of cases of endophthalmitis were reported with the use of Avastin (bevacizumab) which was determined to be the result of unsafe practices by one compounding pharmacy. [7 34 35]

  * While the use of Avastin (bevacizumab) continues to be associated with the risk of endophthalmitis, all intravitreal injections, including commercially available preparations of Eylea (aflibercept), Macugen (pegaptanib), and Lucentis (ranibizumab) carry this risk. [36 37]
**Dosing** [31]

- Eylea (aflibercept) 2 mg is injected intravitreally (into the eye) every 4 weeks for 12 weeks, then every 8 weeks. After one year of effective therapy patients may also be treated with one dose every 12 weeks.
- Avastin (bevacizumab) 1.25 mg is injected intravitreally (into the eye) monthly or as needed.
- Beovu (brolucizumab) 6 mg is injected monthly for the first three doses, followed by 6 mg (one dose) every 8–12 weeks.
- Ranibizumab (Byooviz, Lucentis) 0.5 mg is injected intravitreally (into the eye) every 1 to 3 months.
- The Susvimo ocular implant system is initially inserted into the eye and the 2 mg ranibizumab injection solution refilled every 6 months.
- Vabysmo (faricimab-svoa) is injected monthly for the first four doses, followed by 6 mg (one dose) every 4-8 weeks, with significant variation in dosing dependent on indication and response to therapy.

**Appendix 1: Nomenclature of ocular conditions treated with VEGF Inhibitors** [22 38 39]

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Synonyms</th>
</tr>
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<tbody>
<tr>
<td>Neovascular (wet) age-related macular degeneration</td>
<td>Exudative senile macular degeneration</td>
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<td></td>
<td>Age-related macular degeneration (ARMD)</td>
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<tr>
<td></td>
<td>Choroidal neovascularization (CNV)</td>
</tr>
<tr>
<td>Diabetic Macular Edema and Diabetic Retinopathy</td>
<td>Diabetic macular edema (DME) associated with diabetic retinopathy</td>
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<td>DME due to Type 1 or Type 2 diabetic retinopathy</td>
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<td></td>
<td>DME due to nonproliferative or proliferative diabetic retinopathy (mild, moderate, or severe)</td>
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<tr>
<td></td>
<td>Center involving diabetic macular edema</td>
</tr>
<tr>
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<td>Diabetic retinal edema</td>
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<tr>
<td></td>
<td>Clinically significant diabetic macular edema (CSME)</td>
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<tr>
<td>Myopic choroidal neovascularization</td>
<td>Choroidal neovascularization secondary to pathologic myopia (mCNV)</td>
</tr>
<tr>
<td></td>
<td>Pathologic myopia</td>
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<tr>
<td>Macular edema associated with Retinal Vein Occlusion</td>
<td>Macular edema associated with central retinal vein occlusion (CRVO)</td>
</tr>
<tr>
<td></td>
<td>Macular edema associated with branch retinal vein occlusion (BRVO)</td>
</tr>
<tr>
<td></td>
<td>Macular edema associated with tributary (branch) retinal vein occlusion</td>
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References


## Revision History

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<th>Revision Date</th>
<th>Revision Summary</th>
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| 3/18/2022     | • Updated step therapy with lower-cost VGEFs (bevacizumab, biosimilars) to a claim look-back, for operational consistency.  
• Added step therapy with Lucentis (ranibizumab) to the ranibizumab injection via ocular implant (Susvimo) criteria.  
• Clarified name of formulation: ranibizumab injection via ocular implant (Susvimo).  
• Added Vabysmo (faricimab-svoa) per charter. |
| 10/15/2021    | Effective 1/1/2022:  
• Added newly FDA-approved biosimilar Byooviz (ranibizumab-nuna) to policy.  
• Updated step therapy criteria to require use of Byooviz (ranibizumab-nuna) prior to coverage of Eylea (aflibercept), Beovu (brolucizumab), or Lucentis (ranibizumab) in addition to bevacizumab.  
• Added Susvimo (ranibizumab) per charter. |
| 4/21/2021     | COT language added; no other changes to criteria with this annual update. |
| 4/22/2020     | No changes to criteria with this annual update. |
| 1/22/2020     | • New policy (effective 2/15/2020. Replaces individual drug coverage policies for Lucentis (ranibizumab) and Eylea (aflibercept).  
• Coverage criteria for Beovu (brolucizumab) have been added.  
• Limits use to those patients in which bevacizumab has been ineffective when used in the eye, unless contraindicated. |

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**Medication Policy Manual**

**Policy No:** dru622

**Topic:** Padcev, enfortumab vedotin

**Date of Origin:** May 15, 2020

**Committee Approval Date:** January 20, 2021

**Effective Date:** April 1, 2021

**Next Review Date:** January 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Enfortumab vedotin (Padcev) is medication used for certain types of bladder cancer. It is an antibody-drug conjugate that delivers chemotherapy to bladder cancer cells (cells that express nectin-4). It is given via intravenous infusion and is indicated for use in bladder cancer that has spread outside of the bladder when the disease progresses after standard first-line therapies.

Enfortumab vedotin (Padcev) was approved based on early evidence via the FDA’s accelerated pathway so it is not yet known if it improves any meaningful clinical outcomes.
**Policy/Criteria**

Most contracts require prior authorization approval of enfortumab vedotin (Padcev) prior to coverage.

I. **Continuation of therapy (COT):** Enfortumab vedotin (Padcev) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Enfortumab vedotin (Padcev) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

   A. A diagnosis of **locally advanced (unresectable) or metastatic urothelial carcinoma (bladder cancer)**.

   AND

   B. Disease has progressed on or after each of the following prior therapies (1. and 2.):
      1. A platinum-containing chemotherapy regimen (such as cisplatin, carboplatin).
PLEASE NOTE: Use may have been in the neoadjuvant (before surgical resection)/adjuvant (after surgical resection), locally advanced, or metastatic settings]

AND

2. Therapy with a programmed death receptor-1 (PD-1) or programmed death-ligand 1 (PD-L1) inhibitor (refer to Appendix 1) unless contraindicated or not tolerated.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider enfortumab vedotin (Padcev) to be a self-administered medication.

B. When pre-authorization is approved, enfortumab vedotin (Padcev) may be authorized in quantities up to three, 125-mg doses every 28 days until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Enfortumab vedotin (Padcev) is considered investigational when used for all other conditions.

Position Statement

Summary

- Enfortumab vedotin (Padcev) is an intravenously administered antibody-drug conjugate that delivers cytotoxic chemotherapy to cells that express nectin-4 (e.g. bladder cancer cells). It is indicated for use in patients with unresectable locally advanced or metastatic urothelial carcinoma (bladder cancer) when disease progresses after therapy with platinum-based chemotherapy and a PD-1/PD-L1 inhibitor.

- The intent of this policy is to allow coverage of enfortumab vedotin (Padcev) where it has been shown to be effective [in locally advanced or metastatic bladder cancer after there has been progression during or after cytotoxic chemotherapy AND immune checkpoint inhibitor therapy (PD-1 or PD-L1 inhibitors)], up to the dose shown to be safe and effective in clinical trials.

- The efficacy of enfortumab vedotin (Padcev) is based on a small, single-arm trial that measured tumor response rates (early-phase, low quality evidence). All of the patients in the trial had disease progression on prior therapy with platinum-based chemotherapy and a PD-1 or PD-L1 inhibitor. Shrinking or stabilizing the size of a tumor (measured using an x-ray) has not been shown to accurately predict relevant clinical outcomes such as improvement in survival, function, or quality of life. Additional studies are needed to show that this new therapy improves patient health.
Because there was no comparator in the enfortumab vedotin (Padcev) study, it is not known if it is better than other chemotherapy medications used in this setting, or even best supportive care.

The use of enfortumab vedotin (Padcev) is associated with some serious side effects. Similar to chemotherapy, it may cause nausea and vomiting, fatigue, neutropenia and infections. It may also cause high blood glucose (including diabetes mellitus and diabetic ketoacidosis), and peripheral neuropathy.

The NCCN bladder cancer guideline lists enfortumab vedotin (Padcev) among potential therapies for subsequent-line treatment of locally advanced or metastatic bladder cancer.

Enfortumab vedotin (Padcev) is given via IV infusion over 30 minutes at a dose of 1.25 mg/kg (maximum of 125 mg per dose) every week for 3 consecutive weeks out of every 28-day cycle. It is administered until disease progression or unacceptable toxicity.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

**Clinical Efficacy**

The efficacy of enfortumab vedotin (Padcev) is based on a small, single-arm, non-blinded study in patients with locally advanced or metastatic urothelial carcinoma (bladder cancer) who had two prior lines of therapy for their disease. The overall quality of the evidence is poor.

- All patients had prior therapy with a platinum-based chemotherapy regimen and a checkpoint inhibitor (either a PD-1 or PD-L1 inhibitor). The chemotherapy was administered in the adjuvant or neoadjuvant setting if there was progression within 12 months, or in the locally advanced or metastatic disease settings.

- Additional characteristics of patients enrolled in the trial included good performance status, no active CNS disease, no sensory or motor neuropathy, and no uncontrolled diabetes.

- The trial evaluated tumor response (overall response rate) as the primary endpoint. Tumor response (stabilization of shrinking of tumor size on an x-ray) has not been shown to accurately predict improvement in survival, function, or quality of life in the advanced bladder cancer setting. Additional trials are needed to establish clinical benefit.

- Approximately one in three patients enrolled in the trial stopped treatment for reasons other than meeting a study endpoint (an adverse event, or physician or patient decision).

**Guidelines**

- The NCCN bladder cancer guideline lists enfortumab vedotin (Padcev) as a preferred category 2A recommendation for locally advanced or metastatic bladder cancer that has been previously treated with both a platinum-based chemotherapy regimen and therapy with a PD-1 or PD-L1 inhibitor.
- Other category 2A recommendations include: erdafitinib (Balversa) [for susceptible FGFR3 or FGFR2 genetic alterations], gemcitabine, paclitaxel, docetaxel, ifosfamide/doxorubicin/gemcitabine, gemcitabine/paclitaxel, gemcitabine/cisplatin, and dose-dense methotrexate/vinblastine/doxorubicin/cisplatin with growth factor support.

**Investigational Uses**

- Enfortumab vedotin (Padcev) is a nectin-4-directed antibody-drug conjugate (ADC). Nearly all bladder cancers overexpress this protein. There is interest in using this ADC in other types of cancer that overexpress nectin-4 (e.g. ovarian cancer, hepatocellular carcinoma); however, there is no evidence to support the use of enfortumab vedotin (Padcev) outside of the locally advanced or metastatic bladder cancer setting at this time.

- Enfortumab vedotin (Padcev) has only been studied as a monotherapy. There is no evidence to support concomitant use with other bladder cancer treatments.

**Safety [4]**

- Systemic adverse events (AEs) occurred with a high frequency in the enfortumab vedotin (Padcev) pivotal trial:
  * Grade 3 and 4 adverse events (AEs) occurred in 68% of patients.
  * Dose reductions were required in 34% of the patients.
  * The discontinuation rate due to AEs was 16%.

- The most common serious AEs included urinary tract infections, cellulitis, febrile neutropenia, diarrhea, sepsis, acute kidney injury, dyspnea, and rash.

- Peripheral neuropathy occurred in 56% of patients in the pivotal trial. Four percent of these cases were considered to be grade 3 or 4 reactions.

- Grade 3 or 4 hyperglycemia occurred in 8% of patients enrolled in the clinical trial.

**Dosing [4]**

- The labeled dose of enfortumab vedotin (Padcev) is 1.25 mg/kg, up to a maximum of 125 mg per dose. It is given via intravenous infusion on Days 1, 8, and 15 of every 28-day cycle until disease progression or unacceptable toxicity.

- Doses are withheld, adjusted, or discontinued based on the severity of certain side effects (e.g. hyperglycemia, peripheral neuropathy, skin reactions). Refer to package labeling for specific recommendations.
Appendix 1: PD-1 and PD-L1 Inhibitors Indicated for Use in Bladder Cancer

<table>
<thead>
<tr>
<th>PD-1 Inhibitors</th>
<th>PD-L1 Inhibitors</th>
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<tbody>
<tr>
<td>nivolumab (Opdivo)</td>
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<td>pembrolizumab (Keytruda)</td>
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<td>Bavencio, avelumab, Medication Policy Manual, Policy No. dru499</td>
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<td>Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390</td>
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<td>Tecentriq, atezolizumab, Medication Policy Manual, Policy No. dru463</td>
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Codes

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<td>HCPCS</td>
<td>J9177</td>
<td>Injection, enfortumab vedotin-ejfv (Padcev), 0.25 mg</td>
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</table>

References

1. FDA Center for Drug Evaluation and Research. Approval package for enfortumab vedotin (Padcev), application number BLA 761137Orig1s000; Multi-Discipline Review. [cited 01/08/2020]; Available from: https://www.accessdata.fda.gov/drugsatfda_docs/nda/2019/761137Orig1s000MultiDisclip lineR.pdf
### Revision History

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<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>4/22/2020</td>
<td>New policy (effective 05/15/2020). Limits coverage to patients with unresectable locally advanced or metastatic urothelial carcinoma (bladder cancer) in patients whose disease progressed after front-line platinum-based chemotherapy and second-line checkpoint inhibitor therapy (PD-1/PD-L1 inhibitor therapy), the setting in which it was studied and has a labeled indication.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru623

**Topic:** Enhertu, fam-trastuzumab deruxtecan-nxki

**Date of Origin:** May 15, 2020

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** July 15, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Enhertu (fam-trastuzumab deruxtecan-nxki) is an intravenous (IV) medication used for certain types of cancer. It is an antibody-drug conjugate that delivers chemotherapy to cancer cells that express human epidermal growth factor receptor 2 (HER2).
Policy/Criteria

Most contracts require pre-authorization approval of Enhertu (fam-trastuzumab deruxtecan-nxki) prior to coverage.

I. Continuation of therapy (COT): Enhertu (fam-trastuzumab deruxtecan-nxki) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Enhertu (fam-trastuzumab deruxtecan-nxki) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

A. The tumor is human epidermal growth factor 2 (HER2)-positive.
AND
B. The patient has not had prior treatment with Enhertu (fam-trastuzumab deruxtecan-nxki).
AND

C. A diagnosis of one of the following (1 or 2):

1. **Locally advanced or metastatic gastric or gastroesophageal junction (GEJ) cancer** after disease progression on, or after, two or more prior lines of therapy, which must have included all of the following (a, b, and c):
   
a. Trastuzumab.

   AND

b. A platinum (such as cisplatin, carboplatin, or oxaliplatin).

   AND

c. A fluoropyrimidine [such as fluorouracil (5-FU) or Xeloda (capecitabine)].

OR

2. **Unresectable or metastatic breast cancer** after disease progression on a prior HER2-directed therapy when criteria a or b below is met (refer to Appendix 1):

   a. In the metastatic setting.

   OR

   b. In the neoadjuvant or adjuvant setting after disease recurrence during or within six months of completing therapy.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Enhertu (fam-trastuzumab deruxtecan-nxki) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Enhertu (fam-trastuzumab deruxtecan-nxki) may be authorized in the following quantities:

   1. **Breast cancer**: Up to one infusion (5.4 mg/kg) every 21 days until disease progression.

   2. **Gastric or GEJ cancer**: Up to one infusion (6.4 mg/kg) every 21 days until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Enhertu (fam-trastuzumab deruxtecan-nxki) is considered investigational when used for all other conditions.
Position Statement

Summary

- Enhertu (fam-trastuzumab deruxtecan-nxki) is an intravenously administered antibody-drug conjugate that delivers cytotoxic chemotherapy to cells that express the human epidermal growth factor receptor 2 (HER2). It is indicated for use in patients with unresectable or metastatic HER2-positive breast cancer after the disease has progressed on at least two prior lines of HER2-directed therapy or for use in patients with locally advanced or metastatic HER2-positive gastric or GEJ cancer after the disease has progressed on a prior trastuzumab-containing regimen.

- The intent of this policy is to allow coverage of Enhertu (fam-trastuzumab deruxtecan-nxki) for where it has been shown to be effective (unresectable or metastatic HER2-positive breast and gastric/GEJ cancer, as detailed in the coverage criteria), up to the doses shown to be safe and effective in clinical trials.

- The efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) for gastric/GEJ cancer was evaluated in an open-label randomized trial. All patients had HER2-positive locally advanced or metastatic gastric or GEJ cancer that had progressed after at least two prior trastuzumab-based regimens. An increase in overall survival was seen in patients treated with fam-trastuzumab deruxtecan-nxki.

- The efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) in unresectable or metastatic HER2-positive breast cancer is based on a small, single-arm trial that measured tumor response rates (early-phase, low-quality evidence). All patients enrolled in the clinical study had prior therapy with trastuzumab and Kadcyla (ado-trastuzumab emtansine). Shrinking or stabilizing the size of a tumor (measured using an x-ray) has not been shown to accurately predict relevant clinical outcomes such as improvement in survival, function, or quality of life. Additional studies are needed to show that this new therapy improves patient health. Because there was no comparator in the study, it is not known if Enhertu (fam-trastuzumab deruxtecan-nxki) is better than other HER2-based chemotherapy regimens used in the HER2-positive metastatic breast cancer setting.

- An open-label, randomized trial compared the efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) to Kadcyla (ado-trastuzumab emtansine) in patients with HER2-positive metastatic breast cancer previously treated with trastuzumab and a taxane. At the time of the analysis, progression-free survival was not reached in the fam-trastuzumab deruxtecan-nxki group and was 6.8 months in the trastuzumab emtansine group. [1]

- Like other HER2-based chemotherapy regimens, Enhertu (fam-trastuzumab deruxtecan-nxki) is associated with significant side effects including decreased blood counts (e.g., neutropenia, anemia, thrombocytopenia), gastrointestinal effects (nausea, vomiting, diarrhea), fatigue. It also has a boxed warning for interstitial lung disease (ILD) and pneumonitis, a serious side effect that occurs in one in ten to eleven patients who use this medication.

- NCCN guidelines list Enhertu (fam-trastuzumab deruxtecan-nxki) as an option in HER2-positive gastric/GEJ adenocarcinomas and breast cancer, after other HER2-target therapy.
- Enhertu (fam-trastuzumab deruxtecan-nxki) is given via IV infusion every 3 weeks until disease progression or unacceptable toxicity.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.
- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the 'medical necessity' assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy

Gastric/GEJ Cancer
- The efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) in gastric cancer was evaluated in a phase 2, randomized, open-label trial conducted in Asia. [2]
  * Patients had HER2-positive locally advanced or metastatic gastric or GEJ adenocarcinoma who had progressed on and after at least two prior regimens including trastuzumab, a fluoropyrimidine- and a platinum-containing chemotherapy.
  * Patients received treatment with fam-trastuzumab deruxtecan-nxki or physician’s choice of chemotherapy (irinotecan monotherapy or paclitaxel monotherapy).
  * Overall survival (OS) was 12.5 months with fam-trastuzumab deruxtecan-nxki compared to 8.4 months with chemotherapy.
- NCCN guidelines for gastric and GEJ cancer include Enhertu (fam-trastuzumab deruxtecan-nxki) in HER2-positive gastric or GEJ cancer as a preferred regimen in second-line or subsequent therapy (category 2A) in unresectable locally advanced or metastatic disease. Other preferred regimens in the second line setting include ramucirumab/paclitaxel, docetaxel, paclitaxel, irinotecan (all category 1), and fluorouracil/irinotecan (category 2A). [3]
Breast Cancer

- The efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) in patients with unresectable or metastatic HER2-positive breast cancer is based on a small, single-arm, non-blinded study. The overall quality of evidence is poor.
  * All of the patients in the trial had prior therapy with both a trastuzumab-containing regimen and Kadcyla (ado-trastuzumab emtansine), both anti-HER-2 therapies. In addition, 66% of subjects had prior Perjeta (pertuzumab) and 54% had another anti-HER2 therapy.
  * Patients were required to have good performance status, a left ventricular ejection fraction of at least 50%, and no history of noninfectious interstitial lung disease. Additionally, patients with untreated or symptomatic brain metastasis were not allowed to enroll in the trial.
  * The trial evaluated tumor response (overall response rate) as the primary endpoint. Tumor response (stabilization of shrinking of tumor size on an x-ray) has not been shown to accurately predict improvement in survival, function, or quality of life in the metastatic breast cancer setting. Additional trials are needed to establish clinical benefit.

- The efficacy of Enhertu (fam-trastuzumab deruxtecan-nxki) was also studied in a phase 3, open-label, randomized trial compared to Kadcyla (ado-trastuzumab emtansine) in patients with HER2-positive breast cancer.
  * All of the patients in the trial had unresectable or metastatic breast cancer that had progressed during or after treatment with trastuzumab and a taxane in the context of advanced or metastatic disease or that had progressed within 6 months after neoadjuvant or adjuvant treatment involving trastuzumab or a taxane.
  * The primary endpoint of the trial was progression free survival (PFS). At the time of the study analysis, PFS was not reached for patients in the fam-trastuzumab deruxtecan-nxki group and was 6.8 months in the trastuzumab emtansine group. PFS has not been correlated with a clinically meaningful outcome such as overall survival (OS). OS data is not yet mature.

- The NCCN breast cancer guideline lists the following:
  * Trastuzumab/Perjeta (pertuzumab) plus a taxane is listed as the preferred frontline therapy for recurrent or metastatic HER2-positive breast cancer. Enhertu (fam-trastuzumab deruxtecan-nxki) is listed as a second-line option, along with Kadcyla (ado-trastuzumab emtansine) in this setting.
  * The NCCN notes that trastuzumab deruxtecan-nxki may be considered in the first-line setting as an option for patients with rapid progression within 6 months of neoadjuvant or adjuvant therapy.
  * The guidelines further note that regiments such as fam-trastuzumab deruxtecan-nxki and trastuzumab emtansine may also be used as an option for third-line and beyond; optimal sequencing of HER2-directed therapies has not been determined.
Investigational Uses
- There is no published evidence for Enhertu (fam-trastuzumab deruxtecan-nxki) in early-stage breast cancer. To date, the only evidence is in the metastatic disease setting.
- There is interest in the use of Enhertu (fam-trastuzumab deruxtecan-nxki) for a variety of other HER2-expressing cancers where HER-2 (ERBB2) is considered an emerging biomarker, including non-small cell lung cancer (NSCLC) and colorectal cancer. However, the available evidence is currently limited to small, open-label, single-arm trials with tumor response rate as the primary endpoint. Trials are ongoing. \(^7\) \(^8\)
- There are studies planned evaluating Enhertu (fam-trastuzumab deruxtecan-nxki) in other disease settings, including bladder cancer. \(^9\)

Safety \(^5\) \(^10\)
- Enhertu (fam-trastuzumab deruxtecan-nxki) carries a boxed warning for interstitial lung disease (ILD) and pneumonitis, and the potential for embryo-fetal harm. ILD may be fatal in a small proportion (2.6%) of patients.
- Serious treatment-emergent adverse effects (TEAEs) occurred in one in five patients receiving Enhertu (fam-trastuzumab deruxtecan-nxki) in clinical trials.
- About 1 in 10 patients discontinued Enhertu (fam-trastuzumab deruxtecan-nxki) due to AEs.
- The most commons serious AEs experienced with Enhertu (fam-trastuzumab deruxtecan-nxki) in clinical trials were decreased blood counts (neutropenia, anemia, thrombocytopenia), gastrointestinal effects (nausea, vomiting, diarrhea), fatigue, and asthenia.

Dosing \(^10\)
- Enhertu (fam-trastuzumab deruxtecan-nxki) is given in a dose of 5.4 mg/kg in breast cancer and 6.4 mg/kg in gastric cancer via intravenous infusion every three weeks. It is given until disease progression or unacceptable toxicity.
- Dosing should be interrupted for interstitial lung disease (ILD) or pneumonitis, neutropenia, febrile neutropenia, and left ventricular dysfunction.
Appendix 1: HER2-Directed Agents Used in Breast Cancer (a.k.a. anti-HER2 therapies)

<table>
<thead>
<tr>
<th>Infused (Medical benefit)</th>
<th>Oral (Prescription benefit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>trastuzumab (e.g., Herceptin; biosimilars Kanjinti, Ogivri, Trazimera)</td>
<td>Tykerb (lapatinib)</td>
</tr>
<tr>
<td>Perjeta (pertuzumab)</td>
<td>Nerlynx (neratinib)</td>
</tr>
<tr>
<td>Kadcyla (ado-trastuzumab emtansine)</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Pre-authorization also required for these products with the exception of the preferred version of trastuzumab (see dru620).

Cross References

<table>
<thead>
<tr>
<th>BlueCross BlueShield Association Medical Policy, 5.01.20 - Pertuzumab for Treatment of Malignancies. [November 2021]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyramza, ramucirumab, Medication Policy Manual, Policy No. dru355</td>
</tr>
<tr>
<td>Kadcyla, ado-trastuzumab emtansine, Medication Policy Manual, Policy No. dru298</td>
</tr>
<tr>
<td>Nerlynx, neratinib, Medication Policy Manual, Policy No. dru520</td>
</tr>
<tr>
<td>pertuzumab-containing medications, Medication Policy Manual, Policy No. dru281</td>
</tr>
<tr>
<td>lapatinib (generic, Tykerb), Medication Policy Manual, Policy No. dru145</td>
</tr>
<tr>
<td>Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620</td>
</tr>
</tbody>
</table>

Codes

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J9358</td>
<td>Injection, fam-trastuzumab deruxtecan-nxki (Enhertu), 1 mg</td>
</tr>
</tbody>
</table>
References


## Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>Added coverage criteria for patients with unresectable or metastatic HER2-positive breast cancer after one prior anti-HER2-based regimen in the metastatic or neoadjuvant or adjuvant setting, a newly approved FDA indication.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Added coverage criteria for patients with HER2-positive locally advanced or metastatic gastric or gastroesophageal junction cancer whose disease has progressed after a prior trastuzumab-based regimen, a newly approved FDA indication.</td>
</tr>
<tr>
<td>6/15/2020</td>
<td>Removed references to brand Herceptin (where applicable) from policy to account for upcoming changes in biosimilars policy (dru620).</td>
</tr>
<tr>
<td>4/22/2020</td>
<td>New policy (effective 5/15/2020). Limits coverage to patients with HER2-positive unresectable or metastatic breast cancer in patients whose disease progressed after at least two prior HER2-directed therapies, the setting in which it was studied and has a labeled indication.</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Scenessse, afamelanotide

Date of Origin: May 15, 2020

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Scenessse (afamelanotide) is a medication used to treat a rare genetic condition, erythropoietic protoporphyria (EPP), and the associated skin reaction. It is administered as a subcutaneous implant.
Policy/Criteria

Most contracts require pre-authorization approval of Scenessse (afamelanotide) prior to coverage.

I. Continuation of therapy (COT): Scenesse (afamelanotide) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Scenesse (afamelanotide) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

A. A diagnosis of erythropoietic protoporphyria (EPP), in consultation with a specialist (hematologist or dermatologist).

AND

B. Documentation that one of the following (criterion 1 or 2) below are met

1. Biochemical confirmation of both a and b below:
   a. Elevated total erythrocyte protoporphyrin (≥ 80 mcg/dL).
   AND
   b. Increased proportion of erythrocyte metal-free protoporphyrin versus zinc protoporphyrin (≥ 85% of total erythrocyte protoporphyrin is metal-free).

OR

2. Molecular genetic testing consistent with a diagnosis of EPP (such as biallelic mutation on the ferrochelatase [FECH] gene).

AND

C. Documented phototoxic reactions from EPP have resulted in a significant complication including 1 or 2:

1. Skin maceration with secondary infection requiring anti-infective treatment (antibiotics or antifungals).

OR

2. Documentation of significant impact on quality of life or inability to perform critical activities of daily living (such as going outside to do errands or commuting to work/school) without experiencing significant pain due to phototoxic reactions from EPP.

PLEASE NOTE: Medical treatment of phototoxicity due to EPP is considered not medically necessary in the absence of significant medical complications associated with the condition. Skin irritation or erythema (skin redness) without pain/infection are not considered to be “significant medical complications.”
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Scenesse (afamelanotide) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Scenesse (afamelanotide) will be authorized in quantities up to 4 implants per 48-weeks (based on usual dosing of 1 implant every 8 weeks during seasons of increased sunlight).

C. Authorization may be reviewed at least every 12 months to confirm that the medication is effective as documented by provider attestation or clinical documentation (e.g., decreased pain/severity and number of phototoxic reactions, increased duration of sun exposure, increased quality of life/ability to perform ADLs).

D. Additional treatments may be authorized on a case-by-case basis if documentation supports the need for more frequent dosing are provided (e.g., residence in a locale with year-round significant sun-exposure).

IV. Scenesse (afamelanotide) is considered not medically necessary when used for skin redness, vitiligo, or other cosmetic indications.

V. Scenesse (afamelanotide) is considered investigational when used for all other conditions, including but not limited to:

A. Solar urticaria.

Position Statement

Summary

- The intent of the policy is to limit coverage of Scenesse (afamelanotide) in erythropoietic protoporphyrria (EPP) when symptoms are severe and significantly impact critical activities of daily living.

- Scenesse (afamelanotide) is a melanocortin-1 receptor agonist indicated for increasing pain-free light exposure in adults with a history of phototoxic reactions from EPP.

- The efficacy of Scenesse (afamelanotide) was established in two placebo-controlled randomized trials. Scenesse (afamelanotide) incrementally increased the amount of pain-free time patients were exposed to direct sunlight compared to placebo. However, the clinical relevance of the small change in pain-free time is unknown.

- Use of Scenesse (afamelanotide) for cosmetic purposes, primarily to improve or change appearance such as redness, is considered not medically necessary.

- There is insufficient evidence to support the use of Scenesse (afamelanotide) in any other condition.

- Scenesse (afamelanotide) may be covered for up to four 16 mg doses (subcutaneous implants) in a 48-week period to account for coverage during months when sunlight is the most prominent and intense (spring-fall). Although afamelanotide may be given
every 2 months per label, symptoms of EPP manifest primarily due to sunlight exposure. Therefore, use of medication should be limited to before expected, and during increased, sunlight exposure (typically from spring to early autumn) in areas where the hours and intensity of sun exposure are significantly impacted by seasonality.

Background\(^{1,2}\)

- Total erythrocyte protoporphyrin that is fractionated into non-complexed (metal-free) and zinc-complexed protoporphyrin is critical for an EPP diagnosis. The diagnosis of EPP is established by an abnormally high level of total erythrocyte protoporphyrin with a higher proportion of metal-free protoporphyrin versus zinc protoporphyrin. See appendix A for reference values. An 85% or higher proportion of metal-free is indicative of EPP.

- EPP is most commonly caused by autosomal recessive mutations in the gene encoding ferrochelatase (FECH). Genetic testing may confirm the diagnosis of EPP in the presence of two FECH gene mutations in trans. It is common to identify a FECH mutation on one allele but clinical expression requires a hypomorphic FECH allele in trans with a more severe mutation. IVS3-48T>C (also referred to as c. 315-48T>C) is one hypomorphic variant of the FECH gene. C.1231T>G is a common severe FECH mutation. The presence of both c.1231T>G with c.315-48T>C or two copies of c.1231T>G are confirmatory for EPP. Although important, not all sequence variants have been validated as pathogenic, and a small number of pathogenic mutations are not detected by gene sequencing; therefore, the biochemical profile of porphyrin precursors remains the standard for diagnosis.

Clinical Efficacy

- Scenesse (afamelanotide) has been shown to increase pain-free light exposure in patients with erythropoietic protoporphyria (EPP) relative to placebo in two low-quality, phase 3, randomized-control trials.\(^{3}\)
  * The placebo-controlled trials included adults with biochemically confirmed EPP who did not have any clinically significant organ dysfunction (including hepatic), skin cancer, or premalignant lesions.
  * The primary outcome of interest was duration of time in direct sunlight where patients reported they did not have pain.
  * In both studies, pain-free duration was marginally longer for patients on Scenesse (afamelanotide) versus placebo. In one study, there was a 24-hour difference between arms spread over a six-month period. In another study, the between arm difference was five hours within a nine-month span.\(^{4}\)

- The mainstay of care for phototoxicity related to EPP is sun avoidance and use of protective clothing/physical barriers. Tanning creams which increase skin pigmentation or sunscreens which contain physical reflecting agents may be beneficial to some patients.\(^{5}\)

- Narrow-band ultraviolet-B (UVB) phototherapy or beta-carotene may provide benefit, but efficacy data is limited to several small studies and case series.

- Patients should maintain sun and light protection measures during treatment with Scenesse (afamelanotide).
The National Institute for Health and Care Excellence (NICE) notes that the marketing authorization in the United Kingdom recommends administering afamelanotide every 2 months before expected and during increased sunlight exposure for a maximum of 4 implants per year and that some people may not require four doses per year.[6]

Not Medically Necessary Uses
- Use of Scenese (afamelanotide) for skin redness, vitiligo, or other cosmetic conditions is considered not medically necessary.

Investigational Uses
- Although Scenese (afamelanotide) is being investigated in different skin disorders (such as solar urticaria), the quality of evidence from these studies are poor because they lack controls, are not randomized or blinded, and only involve small numbers of subjects.[7]

Safety[4]
- Scenese (afamelanotide) was generally well-tolerated in clinical trials. Adverse reactions greater than 5% included implant site reactions, nausea, oropharyngeal pain, cough, and fatigue.
- Scenese (afamelanotide) may induce darkening of pre-existing nevi and ephelides due to its pharmacological effect. A regular full body skin examination (twice yearly) is recommended.

Appendix A: Reference laboratory values indicative of EPP[8]

<table>
<thead>
<tr>
<th>Total erythrocyte protoporphyrina</th>
<th>Free protoporphyrina</th>
<th>Zinc protoporphyrina</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 80 mcg/dL</td>
<td>&lt;85% of total erythrocyte protoporphyrina</td>
<td>&lt;15% of total erythrocyte protoporphyrina</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>HCPCS</td>
<td>J7352</td>
<td>Afamelanotide implant (Scenese), 1 mg</td>
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<tr>
<td>ICD-10</td>
<td>E80.0</td>
<td>Hereditary erythropoietic porphyria</td>
</tr>
</tbody>
</table>
References

1. Linenberger M, Fertrin KY. Updates on the diagnosis and management of the most common hereditary porphyrias: AIP and EPP. Hematology Am Soc Hematol Educ Program. 2020;2020(1):400-10. PMID: 33275677


8. Mittal S and Anderson KE. Erythropoietic protoporphyria and X-linked protoporphyria (literature review current through March 2022). UpToDate. Waltham, MA, UpToDate.

Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>No changes in coverage criteria with this annual update. Supporting statement updated with rationale for quantity limits. Updated quantity limits.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Coverage criteria modified to include molecular genetic testing as an option for confirmation of disease.</td>
</tr>
</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru628

Topic: Medications for Sickle Cell Disease

- Adakveo, crizanlizumab-tmca
- Endari, L-glutamine
- Oxbryta, voxelotor

Date of Origin: May 15, 2020

Committee Approval Date: June 17, 2022

Effective Date: July 15, 2022

Next Review Date: June 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

This policy is for oral and injectable medications used in the treatment of sickle cell disease.
Policy/Criteria

Most contracts require pre-authorization approval of medications for sickle cell disease prior to coverage.

I. Continuation of therapy (COT): Medications for sickle cell disease may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. [For Adakveo (crizanlizumab-tmca)] Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. For Endari (L-glutamine) new starts (treatment-naïve): The use of Endari (L-glutamine) is considered not medically necessary for the treatment of patients with sickle cell disease (SCD).

III. For Oxbryta (voxelotor) new starts (treatment-naïve): The use of Oxbryta (voxelotor) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through F below are met.

A. A diagnosis of sickle cell disease (SCD), established by or in consultation with a hematologist.

AND

B. The diagnosis of SCD has been confirmed by genetic testing (see Appendix 1).

AND

C. There has been at least one vaso-occlusive crisis (VOC) over the past 12 months.
AND

D. The member meets one of the following criteria:
   i. Hemoglobin ≤ 10.5 g/dL despite treatment with transfusion(s).
   OR
   ii. VOCs have not been adequately controlled with Adakveo (crizanlizumab-tmca), or Adakveo (crizanlizumab-tmca) was not tolerated or is contraindicated.

AND

E. Hydroxyurea has been ineffective after use for at least 6 months unless the use is not tolerated or is contraindicated. If unable to tolerate hydroxyurea, dose lowering attempts must be made to achieve the maximally tolerated therapeutic doses.

AND

F. For tablets for oral suspension: Documentation that the member weighs less than 40 kg or is unable to swallow tablets.

IV. For Adakveo (crizanlizumab-tmca) new starts (treatment naïve): The use of Adakveo (crizanlizumab-tmca) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through E below are met.

A. A diagnosis of sickle cell disease (SCD), established by or in consultation with a hematologist.

AND

B. The diagnosis of SCD has been confirmed by genetic testing (see Appendix 1).

AND

C. There have been at least two vaso-occlusive crises (VOCs) over the past 12 months.

AND

D. Hydroxyurea has been ineffective after use for at least 6 months unless the use is not tolerated or is contraindicated. If unable to tolerate hydroxyurea, dose lowering attempts must be made to achieve the maximally tolerated therapeutic doses.

AND

E. Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

V. Administration, Quantity Limitations, and Authorization Period

A. Pharmacy Services considers Adakveo (crizanlizumab-tmca) coverable only under the medical benefit (as a provider-administered medication).

B. Pharmacy Services considers Endari (L-glutamine) and Oxbryta (voxelotor) coverable only under the pharmacy benefit (as self-administered medications).
C. When pre-authorization is approved, medications for sickle cell disease will be authorized in quantities and authorization periods as listed in Table 1.

VI. The use of Adakveo (crizanlizumab-tmca), Endari (L-glutamine), and Oxbryta (voxelotor) in combination with each other is considered investigational.

VII. Adakveo (crizanlizumab-tmca), Endari (L-glutamine), and Oxbryta (voxelotor) are considered investigational when used for all other conditions.
**Table 1.**

<table>
<thead>
<tr>
<th>Quantity Limit/Authorization</th>
<th>Initial</th>
<th>Re-authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adakveo (crizanlizumab-tmca):</strong> Up to 5mg/kg at week 0, week 2, and then every 4 weeks thereafter.</td>
<td>24 weeks</td>
<td>Continued authorization or re-authorization (after the initial 24-week period) shall be reviewed at least annually to confirm that current medical necessity criteria are met, the dose is within the dose limits, and that the medication is providing clinical benefit and that there is an improvement in disease activity, such as a decrease in VOC rate, compared to baseline.</td>
</tr>
<tr>
<td><strong>Endari (L-glutamine):</strong> Up to three packets twice daily, not to exceed 30 grams per day.</td>
<td>24 weeks</td>
<td>Continued authorization or re-authorization (after the initial 24-week period) shall be reviewed at least annually to confirm that current medical necessity criteria are met, the dose is within the dose limits, and that the medication is providing clinical benefit and that there is an improvement in disease activity, such as a decrease in VOC rate, compared to baseline.</td>
</tr>
<tr>
<td><strong>Oxbryta (voxelotor):</strong> Tablets: Up to three tablets per day, not to exceed 1500mg per day. Higher doses may be covered when there is concomitant use of a moderate or strong CYP3A4 inducer (up to 4 or 5 tablets per day, respectively). Tablets for oral suspension:</td>
<td>24 weeks</td>
<td>Continued authorization or re-authorization (after the initial 24-week period) shall be reviewed at least annually to confirm the dose is within the dose limits, the medication is providing clinical benefit, and there is an improvement in disease activity compared to baseline, such as improvement in hemoglobin level or anemia signs, symptoms, or complications.</td>
</tr>
</tbody>
</table>
| • ≥40 kg: Up to 5 tablets per day.  
  o With moderate or strong CYP3A4 inducer: up to 7 or 8 tablets per day, respectively.  
| • 20 kg to less than 40 kg: Up to 3 tablets per day.  
  o With moderate or strong CYP3A4 inducer: Up to 4 or 5 tablets per day, respectively.  
| • 10 kg to less than 20 kg: Up to 2 tablets per day.  
  o With moderate or strong CYP3A4 inducer: up to 3 tablets per day.  
|

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Position Statement

Summary

- The medications covered by this policy (Adakveo, Endari, and Oxbryta) are used for the treatment of patients with sickle cell disease (SCD). All are used prophylactically to reduce disease burden.

- Sickle cell disease is a recessive hemolytic anemia, caused by a mutation in the β-globin gene. It is characterized by the formation of sickle hemoglobin (HbS), which is less soluble and less elastic, than fetal hemoglobin (HbF) or normal adult hemoglobin (HbA).

- Patients with SCD experience chronic anemia and severe, debilitating pain events, known as vaso-occlusive crises (VOCs). These VOCs are the most frequent cause of morbidity and mortality in SCD.

- Chronic complications of SCD include pain, anemia, pulmonary hypertension, renal impairment, cardiac dysfunction, hepatotoxicity, neurologic issues, splenic dysfunction, and retinopathy.

- Hydroxyurea has established effectiveness and is recommended by treatment guidelines to decrease VOCs in patients with SCD. It is available generically and is a less costly alternative.

Crizanlizumab

- Adakveo (crizanlizumab-tmca) is a monoclonal antibody that binds to P-selectin, and blocks interactions between endothelial cells, platelets, red blood cells, and leukocytes. P-selectin plays a role in the formation of the multicellular aggregates, that lead to vaso-occlusive crises (VOCs).

- In a randomized, double-blind, placebo-controlled trial, patients with sickle cell disease (SCD) treated with Adakveo (crizanlizumab-tmca) had less VOCs compared to patients treated with placebo during 52 weeks of treatment.

- The intent of this policy is to allow for coverage of Adakveo (crizanlizumab-tmca) for patients with SCD when hydroxyurea is ineffective or not a treatment option, in individuals that continue to experience at least 2 VOCs per year.

Voxelotor

- Oxbryta (voxelotor) is a hemoglobin S (HbS) polymerization inhibitor. HbS polymerization during periods of deoxygenation, leads to sickling of red blood cells, a hallmark of sickle cell disease (SCD).

- In a randomized, double-blind, placebo-controlled trial, patients with SCD treated with Oxbryta (voxelotor) had a greater improvement in hemolysis markers (such as hemoglobin, indirect bilirubin, and percent reticulocytes) compared to patients treated with placebo during 24 weeks of treatment.

- The intent of this policy is to allow for coverage of Oxbryta (voxelotor) for patients with SCD that continue to experience anemia signs, symptoms, or complications despite treatment with alternatives. While Oxbryta (voxelotor) has been shown to improve hemoglobin, it has not been shown to decrease vaso-occlusive crises (VOCs). It was approved through the accelerated approval process, based on an improvement in hemoglobin level.
L-glutamine

- Endari (L-glutamine) is an amino acid indicated to reduce the acute complications of sickle cell disease (SCD) in adult and pediatric patients 5 years of age and older. L-glutamine may improve the nicotinamide adenine dinucleotide (NAD) redox potential in sickle red blood cells through increasing the availability of reduced glutathione.

- In a randomized, double-blind, placebo-controlled trial, patients with SCD treated with Endari (L-glutamine) had less vaso-occlusive crises (VOCs) compared to patients treated with placebo during 48 weeks of treatment. L-glutamine has not been compared to other treatment alternatives.

- The use of Endari (L-glutamine) for SCD is considered not medically necessary, given the lack of proven clinical benefit and significant trial limitations. Of note, other L-glutamine products are also available as over-the-counter supplements.

Clinical Efficacy

Crizanlizumab

- Safety and efficacy data for crizanlizumab was evaluated in a single phase 2, multicenter, randomized, double-blind, placebo-controlled trial, the SUSTAIN trial.

- The primary endpoint in SUSTAIN was annualized rate of vaso-occlusive crises (VOCs), also referred to as a sickle cell-related pain crises (SCPC), in adults with SCD. Time to first VOC event was considered a key secondary endpoint.
  * Subjects with 2 to 10 VOCs in the previous year were included in the trial.
  * VOC was defined as an acute episode of pain with no other medically determined cause than a vaso-occlusive event that requires a medical facility visit and treatment with oral or parenteral narcotics, or parenteral non-steroidal anti-inflammatory drugs. In addition, acute chest syndrome, hepatic/splenic sequestration, priapism, and death were considered to be a VOC.

- Results of the SUTAIN trial demonstrated that crizanlizumab reduces the number of VOCs in adult patients with SCD, compared to placebo.
  * The median annualized rate of VOCs was 1.63 and 2.98 in the crizanlizumab and placebo groups, respectively.
  * The median time to first VOC was 4.07 and 1.38 months in the crizanlizumab and placebo groups, respectively.

- There were no significant changes in quality of life (QOL) assessments, or in the markers for hemolysis (hemoglobin, reticulocytes, indirect bilirubin), between the crizanlizumab and placebo treated arms, during the trial.

Voxelotor

- Voxelotor was granted priority review by the FDA, and was approved based on one phase 3, multi-center, double-blind, placebo controlled randomized controlled trial, the HOPE trial, which demonstrated an improvement in hemoglobin response at 24 weeks compared to placebo.
  * Hemoglobin response was defined as the portion of subjects with increase in hemoglobin > 1g/dL from baseline at week 24.
Results of the HOPE trial demonstrated that voxelotor improved markers of hemolysis, including hemoglobin, indirect bilirubin, and reticulocyte counts.

* A total of 51% (46/90) and 7% (6/92) had a hemoglobin response at week 24, in the voxelotor 1500mg and placebo treated arms, respectively.
* The change in indirect bilirubin was -29.1% and -3.2%, in the voxelotor 1500mg and placebo treated arms, respectively.
* The change in percentage of reticulocytes was -19.9% and -1.3%, in the voxelotor 1500mg and placebo treated arms, respectively.
* The threshold by which a reduction in hemolysis labs, is indicative of clinical benefit, is unknown.
* A confirmatory trial is required by the FDA, which will assess if voxelotor can reduce cerebral blood flow velocity, and lead to a reduction in stroke risk.

Longer-term follow-up in the HOPE trial demonstrated improvement in the markers of hemolysis through week 72. [9]

Vaso-occlusive crisis (VOC) rate, a secondary endpoint, was not significantly different between the voxelotor and placebo treated arms. In addition, the clinical trial noted numerically more transfusions in the voxelotor group than in the placebo treated group, although this was not a pre-specified endpoint.

QOL assessments were included as exploratory endpoints, however, no differences were observed between the voxelotor and placebo groups.

L-glutamine

The efficacy of Endari (L-glutamine) was evaluated in one randomized, double-blind, placebo-controlled trial in patients ≥5 years of age with sickle cell anemia or beta thalassemia who had two or more painful crises within the previous twelve months.

* Patients previously stabilized on hydroxyurea could continue treatment throughout the study.
* Patients treated with L-glutamine experienced less sickle cell crises (SCC) compared to patients treated with placebo (three vs. four, respectively) throughout the 48 weeks of the trial.

High discontinuation rates and problems with the conduct and analysis in the L-glutamine trial reduce the certainty of the clinical benefit.

There are no studies that compare L-glutamine to other treatment alternatives.

Safety

The most common adverse events (incidence of 10% or more) reported during trials with Adakveo (crizanlizumab-tmca) were headache, back pain, nausea, arthralgia, UTI, pain in extremity, URI, pyrexia, diarrhea, and musculoskeletal pain.

The most common adverse events (incidence of 10% or more) reported during trials with Oxbryta (voxelotor) were headache, diarrhea, nausea, arthralgia, URI, abdominal pain, fatigue, rash, pyrexia, pain in extremity, back pain, and vomiting.

The most common adverse events (incidence of 10% or more) reported with Endari (L-glutamine) were constipation, nausea, headache, abdominal pain, cough, pain in extremity, back pain, and chest pain.
Appendix 1: Sickle Cell Disease Types

<table>
<thead>
<tr>
<th>Disease Type</th>
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<tr>
<td>homozygous hemoglobin SS (HbSS)</td>
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<td>heterozygous hemoglobin S β0-thalassemia (HbSβ0-thalassemia)</td>
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<tr>
<td>hemoglobin Sβ+ -thalassemia (HbSβ+ -thalassemia)</td>
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<tr>
<td>hemoglobin SC disease (HbSC)</td>
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Cross References

Site of Care Review, Medication Policy Manual, Policy No. dru408

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J0791</td>
<td>Injection, crizanlizumab-tmca (Adakveo), 5 mg</td>
</tr>
</tbody>
</table>

References

8. FDA Briefing Document: Oncologic Drugs Advisory Committee Meeting. NDA 208587. [cited 04/15/20]; Available at: https://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/Drugs/OncologicDrugsAdvisoryCommittee/UCM559734.pdf
### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 06/17/2022    | - Added Oxbryta (voxelotor) coverage criteria.  
|               | - Updated Adakveo (crizanlizumab-tmca) coverage criteria to require at least two vaso-occlusive crises (rather than more than two) to coincide with trial inclusion criteria. |
| 7/16/2021     | - Addition of Appendix 1: Sickle cell disease types.  
|               | - No criteria changes with this annual update.  
|               | - COT updated to standard format, no change to intent. |
| 7/22/2020     | No changes to criteria with this annual update. |

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Medication Policy Manual

Topic: Givlaari, givosiran

Committee Approval: July 16, 2021

Effective Date: October 1, 2021

Policy No: dru630

Date of Origin: May 15, 2020

Next Review Date: July 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Givosiran (Givlaari) is a medication used to treat a rare condition, acute hepatic porphyria (AHP), and reduce disease flare ups. It is an injectable medication (administered subcutaneously) by a healthcare provider.
Policy/Criteria

Most contracts require pre-authorization approval of givosiran (Givlaari) prior to coverage.

I. **Continuation of therapy (COT):** Givosiran (Givlaari) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Givosiran (Givlaari) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

   A. A diagnosis of **acute hepatic porphyria (AHP)** [including acute intermittent porphyria (AIP), hereditary coproporphyria (HCP), variegate porphyria (VP), and aminolevulinic acid dehydratase porphyria (ADP)].

   AND

   B. The diagnosis of AHP is established by or in consultation with a hepatologist, hematologist, gastroenterologist, or neurologist.

   AND

   C. The diagnosis of AHP has been confirmed by genetic testing, with documentation of a mutation in one of the following genes:

   1. Hydroxymethylbilane synthase (diagnostic for AIP).
   2. Coproporphyrinogen oxidase (diagnostic for HCP).
   3. Protoporphyrinogen oxidase (diagnostic for VP).
   4. Aminolevulinic acid dehydratase (diagnostic for ADP).

   AND

   D. Documentation of recurrent AHP, defined as greater than four attacks per year.

   **PLEASE NOTE:** An attack is defined as a disease exacerbation requiring hospitalization, urgent healthcare visit, or administration of IV hemin (Panhematin) at home.

   AND

   E. Documentation of an evaluation to assess for underlying conditions or triggers for AHP (see Appendices 1 and 2). If identified, a documented plan is in place to address.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy services does not consider givosiran (Givlaari) to be a self-administered medication.

B. When pre-authorization is approved, givosiran (Givlaari) may be authorized up to 2.5mg/kg per month.

C. Authorization shall be reviewed as follows:
   1. Initial Authorization shall be for 6 months.
   2. Continued Authorization: After initial reauthorization, authorization shall be reviewed at least annually (every 12 months). Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including a decrease in AHP attack rates (defined above) compared to baseline and reduction in the need for additional treatment, such as hospitalization, urgent healthcare visits, or need for IV hematin.

IV. Givosiran (Givlaari) is considered investigational when used for all other conditions.

Position Statement

Summary [1,2]

- The intent of the policy is to allow for coverage of givosiran (Givlaari) for recurrent acute hepatic porphyria (AHP), the condition for which it has been studied, when managed by a specialist (as outlined in the coverage criteria), and to limit coverage to doses studied and shown to be safe and effective in clinical trials.

- AHP is a family of rare metabolic diseases involving the heme biosynthesis pathway. AHP consists of four distinct subtypes [acute intermittent porphyria (AIP), hereditary coproporphyria (HCP), variegate porphyria (VP), and aminolevulinic acid dehydratase porphyria (ADP)].

- Each AHP subtype involves a distinct enzymatic mutation within the pathway.
  * In AIP, HCP, and VP, these mutations reduce enzymatic activity to about 50% that of a normal patient.
  * With ADP, enzymatic activity is reduced to less than 5%.

- The first enzyme in the heme pathway, aminolevulinic acid synthase 1 (ALAS1), can be induced by numerous external triggers. An induction in ALAS1 results in the increased production of aminolevulinic acid (ALA) and porphobilinogen (PBG), two neurotoxic heme intermediates.

- The accumulation of ALA and PBG results in painful neurovisceral attacks, which consist of severe abdominal pain, peripheral neuropathy, tachycardia, hypertension, sweating, insomnia, bladder dysfunction and potential CNS involvement.
- AHP episodes are often triggered by an exacerbating factor, such as alcohol, smoking, certain medications (barbiturates, phenytoin, rifampin, etc), lack of nutrition, hormonal fluctuations, and stress. Education and avoidance of precipitating factors is key to a prevention of AHP attacks.

- A mutation in the heme biosynthesis pathway diagnostic of AHP, is relatively common, however the majority of patients are asymptomatic. Symptomatic AHP occurs in about ten per 1,000,000 patients, and disproportionately impacts women in their second through fourth decades of life.

- The majority of symptomatic AHP patients present with sporadic attacks. Only 3 to 8% of symptomatic patients have recurrent attacks, defined as greater than four attacks per year. It is this small subpopulation with frequent recurrent attacks which may benefit from givosiran (Givlaari).

- During clinical trials, givosiran (Givlaari) use resulted in a clinically relevant decrease in the annualized attack rate and use of emergency hemin in patients with AHP as compared to placebo.

- Givosiran (Givlaari) was only studied in symptomatic patients with greater than two attacks within the last six months. The safety and efficacy in asymptomatic or less active disease is unknown.

- Additional controlled trials are needed to assess the long-term safety and efficacy of givosiran (Givlaari), including improvement in quality of life (QOL), overall survival, impact on long-term complications, or benefit over existing treatment options.

- Givosiran (Givlaari) may be covered in doses up to 2.5mg/kg every month for AHP, the dose at which it has been shown to be safe and effective.

**Clinical Efficacy**

The safety and efficacy of givosiran in recurrent AHP was established based on one phase 3, multi-center, double-blind, placebo controlled RCT, the ENVISION trial.

- The primary endpoint in ENVISION was annualized AIP attack rate, which was defined as an exacerbation that required hospitalization, urgent healthcare visit, or IV hemin administration.

- Subjects with greater than two attacks in the last six months, were included in the trial.

- Only patients with the most common form of AHP; AIP, were included in the primary endpoint. In total, 5 patients with VP, HCP, or ADP were included in the trial, but excluded from this endpoint.

- In the ENVISION trial, givosiran reduced the absolute number of AIP attacks at six months as well as the use of rescue hemin as compared to placebo.

- The mean annualized AIP attack rate was 3.2 versus 12.5 attacks in the givosiran and placebo groups, respectively.

- The mean annualized days of hemin use in AIP patients was 6.77 versus 29.71 days in the givosiran and placebo groups, respectively.
- Daily worst pain score, using a validated pain scale, the Brief Pain Inventory-Short Form (BPI-SF), was assessed during the trial, as a key secondary endpoint. There was no statistically significant improvement in pain between the placebo and givosiran arms.
- Due to the short duration of the trial (6 months), it is unknown if givosiran will result in a clinically meaningful improvement in long-term QOL, overall survival, or a reduction in chronic complications (including hepatocellular carcinoma, chronic kidney disease, hypertension, or polyneuropathy).

**Clinical Guidelines/Standard of Care Treatment** [1]
- Recommendations published by the Porphyria Consortium advise of the following for the long-term management of AHP:
  * Education and avoidance of precipitating factors is key to a prevention of AHP attacks.
  * Patients with recurrent attacks, defined as four or more attacks per year, are candidates for prophylactic hemin. However, hemin dosing and management is highly individualized.
  * The use of gonadotropin-releasing hormone (GnRH) analogues or switching to a low-dose hormonal contraceptive can prevent attacks in women with frequent luteal phase attacks.
  * Liver transplant in those with severe intractable attacks can provide benefit. However, due to the associated morbidity and mortality, transplant is considered a treatment of last resort.

**Safety** [4]
- During clinical trials the most frequent adverse events (>10% incidence) were nausea, injection site reactions, rash, serum creatinine increases, transaminase elevation, and fatigue.

**Dosing** [4]
- Givosiran is administered once monthly, in doses up to 2.5mg/kg/dose.
- Efficacy and dosing of givosiran in AHP patients in doses higher than 2.5mg/kg once monthly has not been established.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>ICD-10</td>
<td>E80.21</td>
<td>Acute intermittent (hepatic) porphyria</td>
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<tr>
<td>HCPCS</td>
<td>J0223</td>
<td>Injection, givosiran (Givlaari), 0.5 mg</td>
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### Appendix 1: AHP Triggers[1]

<table>
<thead>
<tr>
<th>Medications (see appendix 2)</th>
<th>Stress</th>
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<tbody>
<tr>
<td>Alcohol</td>
<td>Fasting</td>
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<tr>
<td>Smoking</td>
<td>Dieting</td>
</tr>
<tr>
<td>Infections or illnesses</td>
<td>Iron deficiency</td>
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### Appendix 2: Unsafe medications in AHP a[5]

<table>
<thead>
<tr>
<th>Anesthetics (etomidate, ketamine, thiopental)</th>
<th>Griseofulvin</th>
<th>Progesterone and synthetic progestins</th>
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<tbody>
<tr>
<td>Barbiturates</td>
<td>Hydralazine</td>
<td>Pyrazinamide</td>
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<tr>
<td>Carbamazepine</td>
<td>Hydroxyzine</td>
<td>Pyrazolones (aminopyrine and antipyrine)</td>
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<tr>
<td>Carisoprodol</td>
<td>Meprobamate</td>
<td>Rifampin</td>
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<tr>
<td>Clonazepam</td>
<td>Metoclopramide</td>
<td>Spironolactone</td>
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<tr>
<td>Danazol</td>
<td>Nifedipine</td>
<td>Succinimides (ethosuximide and methsuximide)</td>
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<tr>
<td>Diclofenac</td>
<td>Nitrofurantoin</td>
<td>Sulfasalazine</td>
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<tr>
<td>Efavirenz</td>
<td>Oxcarbazepine</td>
<td>Sulfonamide antibiotics</td>
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<tr>
<td>Ergots</td>
<td>Phenytoin</td>
<td>Tamoxifen</td>
</tr>
<tr>
<td>Estrogen</td>
<td>Phenobarbital</td>
<td>Topiramate</td>
</tr>
<tr>
<td>Gluthethimide</td>
<td>Primidone</td>
<td>Valproic acid</td>
</tr>
</tbody>
</table>

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a A complete and up-to-date list of unsafe medications can be found on the American Porphyria Foundation website ([https://porphyriafoundation.org/drugdatabase/](https://porphyriafoundation.org/drugdatabase/)).
References

Revision History

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
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**Medication Policy Manual**

**Policy No:** dru631

**Topic:** Reblozyl, luspatercept-aamt

**Date of Origin:** May 15, 2020

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Reblozyl (luspatercept-aamt) is an injected medication used to treat certain types of anemias in patients who require regular red blood cell transfusions (RBCTs).
Policy/Criteria

Most contracts require pre-authorization approval of Reblozyl (luspatercept-aamt) prior to coverage.

I. **Continuation of therapy (COT):** Reblozyl (luspatercept-aamt) may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   AND

   D. Site of care administration requirements are met [refer to Medication Policy Manual, *Site of Care Review*, dru408].

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Reblozyl (luspatercept-aamt) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met:

   A. Site of care administration requirements are met [refer to Medication Policy Manual, *Site of Care Review*, dru408].

   AND

   B. Reblozyl (luspatercept-aamt) is prescribed by, or in consultation with a hematologist.

   AND

   C. Luspatercept will be used in one of the following settings when criterion 1 or 2 below are met:

      1. A diagnosis of **beta thalassemia** when criteria a and b below are met.
a. Documented transfusion dependence, defined as transfusion of at least six units of packed red blood cells (PRBCs) in the previous 24 weeks.

AND

b. No transfusion-free period greater than 35 days (5 weeks) in the previous 24 weeks.

OR

2. A diagnosis of myelodysplastic syndrome (MDS) with ring sideroblasts when criteria a, b, and c below are met.
   a. The MDS is classified as very low, low, or intermediate risk MDS according to the IPSS-R (see Appendix 1).
   
   AND

   b. Documented transfusion dependence, defined as transfusion of at least six units of packed PRBCs in the previous 24 weeks.
   
   AND

   c. Erythropoiesis-stimulating agents (ESA) treatment was ineffective, not tolerated, or is contraindicated (see Appendix 2).

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Reblozyl (luspatercept-aamt) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Reblozyl (luspatercept-aamt) may be approved in the following quantities:

1. Beta-thalassemia: Up to 1.25 mg/kg every 3 weeks.

2. MDS: Up to 1.75 mg/kg every 3 weeks.

C. Authorization shall be reviewed as follows to confirm that medical necessity criteria are met and that the medication is effective.

1. Initial authorization:

   Beta-thalassemia: Authorization shall be reviewed after 18 weeks. If there is no documented decrease in transfusion burden after 18 weeks, no further Reblozyl (luspatercept-aamt) will be authorized for coverage.

   NOTE: This time frame is based on response after 15 weeks (five doses) plus time to reassess the patient.

   MDS: Authorization shall be reviewed after 24 weeks. If there is no documented decrease in transfusion burden after 24 weeks, no further Reblozyl (luspatercept-aamt) will be authorized for coverage.

   NOTE: This time frame is based on response after 21 weeks (seven doses) plus time to reassess the patient.

2. Continued authorization (after the initial 18-week period): Authorization shall be reviewed annually.

NOTE: These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
3. For all authorizations (initial and continued authorization): Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit evidenced by a reduction or sustained reduction in the need for PRBC transfusions (PRBCTs).

IV. Reblozyl (luspatercept-aamt) is considered investigational when used for all other conditions.

**Position Statement**

**Summary**

- The intent of this policy is to allow for coverage of Reblozyl (luspatercept-aamt) in transfusion dependent patients with beta-thalassemia or lower-risk MDS, up to the doses shown to be safe and effective in clinical trials.

- **Beta-thalassemia:**
  - Evidence to support the use of Reblozyl (luspatercept-aamt) in beta-thalassemia was based on a phase 3, randomized, double-blind, placebo-controlled study in patients with beta thalassemia who required regular RBCTs. Reblozyl (luspatercept-aamt) reduced transfusion burden more than placebo. [1,2]
  - Current standard of care for patients with beta-thalassemia addresses the symptoms of the disease, primarily using life-long, ongoing RBCTs with additional iron chelation therapy to manage iron overload. [3]

- **MDS:**
  - The safety and efficacy of Reblozyl (luspatercept-aamt) was also evaluated in a phase 3, randomized, double-blind, placebo-controlled study in patients with very low, low, or intermediate risk MDS with ring sideroblasts who were dependent on RBCTs and unable to have treatment with ESAs. Patients treated with Reblozyl (luspatercept-aamt) needed less transfusions compared to patients treated with placebo. [4]
  - Guidelines by the NCCN recommend ESAs as first-line treatment for lower-risk MDS. Other treatment options include chemotherapy (azacitidine, decitabine), targeted therapy (imatinib), immunosuppressive therapy (anti-thymocyte globulin, cyclosporine), and immunomodulators (lenalidomide). [5]

- In clinical trials, Reblozyl (luspatercept-aamt) doses were increased after six weeks (two doses) is there was suboptimal response, defined as no decrease in transfusion burden versus baseline. For the third dose (at week 9), the patient increased to the maximum dose of 1.25 mg/kg (beta-thalassemia) or 1.75 mg/kg (MDS). The majority of patients in clinical trials achieved a response within approximately four to five treatment cycles. After nine weeks of treatment at the maximum dose (after 15 weeks of treatment total), Reblozyl (luspatercept-aamt) is discontinued if there is no decrease in transfusion burden. Therefore, if a patient does not have a reduction in transfusion burden after 15 weeks of therapy, additional Reblozyl (luspatercept-aamt) may not be covered. [1,4,7]
- Reblozyl (luspatercept-aamt) may be covered for up to the doses shown to be safe and effective in the pivotal trials. The safety and effectiveness of higher doses have not been established.
- There is insufficient evidence to support the use of Reblozyl (luspatercept-aamt) in any other conditions.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.
- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above. Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy
Beta-thalassemia
- Safety and efficacy of luspatercept were evaluated in a phase 3, multicenter, randomized, double-blind, placebo-controlled trial in adult patients with beta-thalassemia who required regular RBCTs (“transfusion-dependent”). [2]
  * Patients were required to have received 6 to 20 RBC units within 24 weeks prior to the study and no transfusion-free periods of greater than 35 days.
  * Patients were randomized to receive 48 weeks of treatment with either luspatercept or placebo every 3 weeks. Treatments were administered in addition to best supportive care (BSC) which included RBCT and iron chelation therapy to maintain a patient’s baseline hemoglobin level.
  * The primary endpoint was erythroid response defined as a ≥33% reduction from baseline in RBCT burden (with a reduction of ≥2 units).
  * Study results demonstrated a greater reduction in transfusion burden in patients treated with Reblozyl (luspatercept-aamt) compared to placebo.
MDS
- In patients with lower-risk MDS with ring sideroblasts, safety and efficacy of luspatercept were evaluated in a phase 3, multicenter, randomized, double-blind, placebo-controlled trial in patients who were refractory, intolerant, or ineligible for ESA treatment. [4]
  * Patients were required to have ≥2 RBC units in the previous 8 weeks and very low, low, or intermediate risk disease by the IPSS-R classification system.
  * Patients received treatment with Reblozyl (luspatercept-aamt) or placebo every 3 weeks.
  * The primary endpoint was RBC-transfusion independence (RBC-TI) ≥8 weeks between week 1 and 24, which was demonstrated in more patients in the luspatercept treatment group than in the placebo group.

Investigational Uses
- There is insufficient evidence to establish the efficacy of Reblozyl (luspatercept-aamt) for the treatment of other conditions, including non-proliferative chronic myelomonocytic leukemia, myelofibrosis, or non-transfusion dependent thalassemia. Data is limited to small, unpublished, phase II trials. Although the preliminary evidence is promising, larger, well controlled trials are needed to establish the safety and efficacy of Reblozyl (luspatercept-aamt) in these settings. Additional trials are ongoing. [6]

Safety [7]
- The most common adverse reactions associated with Reblozyl (luspatercept-aamt) include headache, bone pain, arthralgia, fatigue, cough, abdominal pain, diarrhea, and dizziness.

Dosing [7]
- The recommended dose of Reblozyl (luspatercept-aamt) in patients with beta thalassemia is 1 mg/kg (up to 1.25 mg/kg) every 3 weeks by subcutaneous injection. Safety and effectiveness of higher doses have not been established.
- In clinical trials of MDS, the dose of Reblozyl (luspatercept-aamt) was 1 mg/kg (up to 1.75 mg/kg) administered every 3 weeks by subcutaneous injection. The safety and effectiveness of higher doses have not been established.
### Appendix 1: IPSS-R Prognostic Risk Categories/scores [8]

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Risk score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very low</td>
<td>≤ 1.5</td>
</tr>
<tr>
<td>Low</td>
<td>&gt; 1.5 – 3</td>
</tr>
<tr>
<td>Intermediate</td>
<td>&gt; 3 – 4.5</td>
</tr>
<tr>
<td>High</td>
<td>&gt; 4.5 – 6</td>
</tr>
<tr>
<td>Very high</td>
<td>&gt; 6</td>
</tr>
</tbody>
</table>

### Appendix 2: Erythropoiesis-stimulating Agents

- **Aranesp**  
  - darbepoetin alfa
- **Epogen**    
  - epoetin alfa
- **Procrit**   
  - epoetin alfa
- **Retacrit**  
  - epoetin alfa-epbx

### Cross References

Site of Care Review, Medication Policy Manual, Policy No. dru408
References


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>6/17/2022</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Updated initial authorization periods to differentiate between beta-thalassemia and MDS and to be consistent with labeling.</td>
</tr>
<tr>
<td>04/22/2020</td>
<td>New policy (effective 5/15/2020). Limits coverage to patients with beta-thalassemia who require regular red blood cell transfusions. Coverage criteria also allows for patients with lower risk MDS who require regular red blood cell transfusions and are refractory, intolerant, or ineligible for ESA treatment, the settings in which luspatercept was studied.</td>
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</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

**Topic:** Tepezza, teprotumumab

**Date of Origin:** May 15, 2020

**Committee Approval Date:** April 21, 2021

**Next Review Date:** April 2022

**Effective Date:** July 1, 2021

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**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Teprotumumab (Tepezza) is a medication used to treat thyroid eye disease. It is an injected medication administered by a healthcare provider.
Policy/Criteria

Most contracts require pre-authorization approval of teprotumumab (Tepezza) prior to coverage.

I. Continuation of therapy (COT): Teprotumumab (Tepezza) may be considered medically necessary for COT when criterion A or B plus criteria C AND D below is met.

A. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

OR

B. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

C. The requested number of doses (infusions) is within the policy limits below. Note: Doses (infusions) already administered will be counted towards the coverable maximum quantity.

AND

D. Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Teprotumumab (Tepezza) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through F below are met.

A. Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

AND

B. A diagnosis of Grave’s disease.

AND

C. Teprotumumab (Tepezza) is prescribed by, or in consultation with an ophthalmologist.

AND

D. The patient has treated thyroid disease (normalized or normalizing), as defined by meeting one of the following, based on thyroid function testing (criterion 1 or 2)

1. Normal thyroid function (“euthyroid”) (T4 and T3 within normal limits of the lab).
OR
2. Normalizing thyroid function, defined as both the thyroxine (T4) and free triiodothyronine (T3) levels are less than 50% above OR 50% below normal limits.

AND
E. Documented significant (moderate to severe) symptoms of thyroid eye disease, with both of the following criteria (1 and 2):
1. A documented Clinical Activity Score (CAS) of at least 4 in at least one eye. (see Appendix 1)
2. Treatment with an adequate course of corticosteroids (for example, prednisone 30 mg/day for four weeks) has been ineffective, not tolerated, or all are contraindicated.

AND
F. No prior surgical treatment for thyroid eye disease.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does NOT consider teprotumumab (Tepezza) to be a self-administered medication.
B. When pre-authorization is approved, teprotumumab (Tepezza) will be approved for up to a total of eight infusions (one treatment course) per lifetime, based on dosing of up to a maximum of 20 mg/kg/dose every three weeks.
C. No additional doses beyond the maximum number of doses stated above will be authorized.

IV. The use of teprotumumab (Tepezza) for less severe thyroid eye disease is considered cosmetic. Use of teprotumumab (Tepezza) for cosmetic indications is considered not medically necessary and not coverable.

V. Teprotumumab (Tepezza) is considered investigational when used for all other conditions, including but not limited to:
A. Diabetic macular edema
B. Cancers
Position Statement

Summary
- The intent of this policy is to allow for coverage of teprotumumab (Tepezza) in patients with moderate to severe thyroid eye disease when lower-cost standard of care alternatives are not effective, up to the doses shown to be safe and effective in clinical trials.

- Evidence to support the use of teprotumumab (Tepezza) was based on two phase 3 trials. Patients included in the trials were required to have Graves’ disease with moderate to severe thyroid eye disease, and treated thyroid disease (normalized or normalizing). Previous treatment with teprotumumab, orbital irradiation, and/or surgery for thyroid eye disease was not allowed. [1,2]

- Goals of treatment include achieving a euthyroid state and symptom management. Most patients mild to moderate disease and require primarily supportive care with ocular lubrication and lifestyle modification, whereas moderate to severe disease is oral or intravenous corticosteroids. [3-5]

- There are no clinical trials that compared the safety and efficacy of teprotumumab (Tepezza) over current first line treatment with corticosteroids.

- In clinical trials, teprotumumab (Tepezza) has only been studied in patients with moderate to severe thyroid eye disease. Therefore, the use of teprotumumab (Tepezza) for less severe thyroid eye disease is considered cosmetic and not medically necessary.

- There is insufficient evidence to support the use of teprotumumab (Tepezza) in any other conditions.

- Teprotumumab (Tepezza) may be covered for up to 20 mg/kg per dose every three weeks for a maximum of eight infusions, the dose studied in clinical trials. The safety and effectiveness of higher or additional doses, included repeated treatment course, have not been established. [6]

Disease Background
- Thyroid eye disease is a rare autoimmune condition caused by antibodies directed against receptors in the thyroid cells and also on the surface of the cells behind the eyes. Muscles and fatty tissues behind the eye become inflamed, causing the eyes to be pushed forward and bulge outwards (proptosis). It can cause also cause eye pain, double vision, light sensitivity, or difficulty closing the eye.

- Thyroid eye disease develops in approximately 40% of patients with Graves’ disease. It can occur in patients when their thyroid is overactive, underactive, or functioning normally. Thyroid eye disease often improves on its own; however, in some patient’s symptoms may persist despite treatment of the overactive thyroid gland.

- Teprotumumab (Tepezza) may have a role in interfering with the receptors responsible for causing inflammation, pain, swelling, and other symptoms associated with thyroid eye disease.

- Goals of treatment in thyroid disease consists of achieving a euthyroid state and symptom management. The majority of patients with thyroid eye disease have mild to
moderate disease and require primarily supportive care with ocular lubrication (eyedrops and ointment), topical cyclosporine, and lifestyle modification (smoking cessation, sodium restriction, sunglasses). The current mainstay of treatment for moderate to severe thyroid eye disease is oral or intravenous corticosteroids. Treatment can be initiated at doses of prednisone 30 mg daily for four weeks. Treatment for thyroid eye disease should start in the early months of the active inflammatory phase, as treatment becomes less effective as the disease progresses. [3-5]

**Clinical Efficacy**

- Teprotumumab is a human monoclonal antibody against the insulin-like growth factor-1 receptor inhibitor. Teprotumumab may interfere with the signaling pathway that mediates the symptoms associated with thyroid eye disease.
- The safety and efficacy of teprotumumab were evaluated in two phase 3, multicenter, randomized, double-masked, placebo controlled trials in patients with thyroid eye disease. [1,2,7]
  * Patients were required to have a diagnosis of Graves’ disease with active, moderate to severe thyroid eye disease with significant symptoms, such as significant lid retraction, moderate or severe soft-tissue involvement, proptosis, and diplopia.
  * All patients had a CAS ≥4 and symptoms less than 9 months from the onset of thyroid eye disease.
  * All patients were euthyroid or with mild hypo- or hyperthyroidism.
  * Patients with previous orbital irradiation or surgery for thyroid eye disease were not allowed.
  * The primary endpoint in the first trial was a composite endpoint of reduction of ≥2 points in the CAS and a reduction of ≥2 mm in proptosis. The primary endpoint in the second trial was a reduction in proptosis of ≥2 mm. [1,2] In both trials, significantly more patients treated with teprotumumab demonstrated less symptoms of thyroid eye disease than patients treated with placebo. [1,2]

**Not Medically Necessary Uses**

- There is no evidence to support the use of teprotumumab (Tepezza) in patients with less severe thyroid eye disease. Clinical trials limited the patient population to patients with moderate to severe disease. Therefore, safety and efficacy in patients with less severe thyroid eye disease has not been established. The use of teprotumumab (Tepezza) for less severe thyroid eye disease is considered cosmetic. Use of teprotumumab (Tepezza) for cosmetic indications is considered not medically necessary and not coverable.

**Investigational Uses**

- There is insufficient evidence to establish the efficacy of teprotumumab (Tepezza) for any other conditions, including for the treatment of diabetic macular edema or in cancers. Data is limited to small, early-stage trials. Well controlled trials are needed to establish the safety and efficacy of teprotumumab (Tepezza) in these settings. Trials are ongoing. [8]
Dosing [6]

- The recommended dose of teprotumumab (Tepezza) is 10 mg/kg for the first infusion, followed by 20 mg/kg every 3 weeks for 7 additional infusions (for a total of eight infusions for a single treatment course). The safety and effectiveness of higher doses or additional doses (or treatment course) have not been established.

### Appendix 1: Clinical Activity Score (CAS)

The 7-point scale is comprised of 2 patient-reported outcomes and 5 clinician-reported outcomes. Each component is scored as present or absent, 1 or 0. The sum of these points is the total score, i.e., giving a range of 0-7, where 0 or 1 constitutes inactive disease and 7 severe active ophthalmopathy. A change of ≥2 points is considered clinically meaningful.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Spontaneous orbital pain</td>
</tr>
<tr>
<td>2</td>
<td>Gaze evoked orbital pain</td>
</tr>
<tr>
<td>3</td>
<td>Eyelid swelling that is considered to be due to active Graves’ ophthalmopathy</td>
</tr>
<tr>
<td>4</td>
<td>Eyelid erythema</td>
</tr>
<tr>
<td>5</td>
<td>Conjunctival redness considered due to active Graves’ ophthalmopathy</td>
</tr>
<tr>
<td>6</td>
<td>Chemosis</td>
</tr>
<tr>
<td>7</td>
<td>Inflammation of caruncle or plica</td>
</tr>
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</table>

### Cross References

Infused Medication Alternative Site of Care, Medication Policy Manual, Policy No. dru408

### References

6. Tepezza (teprotumumab-trbw) [Prescribing Information]. Lake Forest, IL: Horizon Therapeutics; January 2020


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>4/21/2021</td>
<td>Removed criterion requiring thyroid eye disease symptoms present for less than nine months; added Clinical Activity score in Appendix (effective 5/15/21).</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>Updated criterion II to read “A through G.” No other changes to criteria.</td>
</tr>
<tr>
<td>April 22, 2020</td>
<td>New policy (effective 05/15/2020). Limits coverage to patients with moderate to severe thyroid eye disease when lower-cost standard of care alternatives are not effective.</td>
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</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru634

**Topic:** Palforzia, peanut (Arachis hypogaea) allergen oral powder-dnfp

**Date of Origin:** May 15, 2020

**Committee Approval Date:** June 17, 2022

**Next Review Date:** March 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Peanut (Arachis hypogaea) allergen oral powder-dnfp (Palforzia) is a medication used for people with severe peanut allergy, to reduce the risk of allergic reactions due to accidental exposure to peanut.
Policy/Criteria

I. Continuation of therapy (COT): Palforzia may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Palforzia may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through C are met.

A. Palforzia is prescribed by an allergist or immunologist.

AND

B. The member has a confirmed diagnosis of peanut allergy based on one of the following:
   1. A positive peanut specific immunoglobulin E (IgE) test for peanut allergy.
   OR
   2. A positive skin prick test (SPT) to peanut protein.
   OR

AND

C. The patient is age 4 to 17 years at the time of initiating treatment with Palforzia...
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Palforzia coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication) depending on dose phase.

B. When pre-authorization is approved, Palforzia will be authorized in a quantity sufficient for up to a 30-day supply.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) may be required to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement including reduction in the frequency and severity of peanut allergy reactions as compared to prior to starting.

Position Statement

Summary

- The intent of this policy is to limit coverage of Palforzia for the indication and dose for which it has been shown to be safe and effective, for patients with a confirmed diagnosis of peanut allergy who the specific age of patients evaluated in clinical trials of Palforzia, as specified in the coverage criteria above.

- Palforzia is approved to for the mitigation of allergic reactions, including anaphylaxis, that may occur with accidental exposure to peanut. [1]

- Clinical trials of Palforzia showed an increase in the percentage of patients who could ingest peanut protein during a food challenge (600 mg of peanut protein). [2] The clinical meaningfulness of the ability to tolerate 600 mg of peanut protein is uncertain, and it is unclear if treatment provides benefit over strict avoidance of peanuts alone. In addition, there was an increase in systemic allergic reactions and the need for epinephrine, such that the risk versus benefit must be carefully considered.

- In clinical trials for Palforzia, the diagnosis of peanut allergy was confirmed through skin prick testing or serum peanut specific IgE levels. [2] Oral food challenges may also be used to confirm the diagnosis. [3]

- Palforzia has a complex dosing regimen, which requires strict adherence. Dose initiation and dose increases must be done under the supervision of a healthcare provider. [1]

- Palforzia has several serious warnings related to its use, including: anaphylaxis (can occur at any time during therapy), not for use in patients with uncontrolled, severe, or steroid-dependent asthma, risk of eosinophilic esophagitis, and GI adverse events. [1] [4]

- There is limited data on long-term durability and safety for Palforzia. Initial Palforzia trials were limited to 20 to 40 weeks of up-dosing followed by 24 to 28 weeks of maintenance dosing. A two-year open-label follow-on study found that daily dosing regimens were better tolerated than nondaily regimens. [5] However, it is currently unknown if Palforzia maintains safety and efficacy if patients are not consistently adherent. If patients do not continuously adhere to treatment, including the specifics of the dose titration, they may become allergic to the treatment itself and have a reaction if they restart. [1] [6]
The use of Palforzia for any other condition or type of allergy is considered investigational. In addition, the use of more than one peanut allergy treatment at a time is considered investigational.

Clinical Efficacy - Palforzia

- Palforzia was evaluated in one phase 3, double-blind, randomized, placebo-controlled trial (PALISADE) for desensitization and improvement in ability to ingest peanut protein during a food challenge.[2]
  * The study included patients age 4 to 55 years with confirmed peanut allergy. However, efficacy was only evaluated in patients from 4 to 17 years of age. There is no safety or efficacy data in patients less than 4 years of age.
  * The primary endpoint was desensitization in patients age 4 to 17 after 24 to 28 weeks of maintenance therapy.
  * Desensitization was defined as the proportion of subjects able to ingest more than 600 mg of peanut protein during a double-blind, placebo-controlled, food challenge (DBPCFC).
  * 67% of patients who received Palforzia were able to tolerate 600 mg of peanut protein compared to 4% of patients who received placebo.
  * The ability to tolerate 600 mg of peanut protein is of uncertain clinical relevance. There is no consensus on what tolerated dose is considered clinically relevant. [6]
  * Endpoints such as a decrease in reactions to accidental exposure to peanuts, need for emergency medical treatment (such as epinephrine use, emergency department visits, or hospitalization), quality of life, or other patient centric outcomes would be more meaningful.

- Patients were randomized to receive Palforzia or placebo. Doses of Palforzia were escalated to 300 mg daily with an increase every two weeks within a 40-week period. All dose-escalations took place in-office. Maintenance therapy of 300 mg daily was then continued for 24 weeks. At the end of 24 weeks of maintenance therapy, patients completed a DBPCFC to assess the primary endpoint.

- Although a significantly higher percentage of patients were able to tolerate 600 mg of peanut protein, the rate of systemic allergic reactions and use of epinephrine was higher in patients who received Palforzia.

<table>
<thead>
<tr>
<th>PALISADE Study</th>
<th>Palforzia (n = 372)</th>
<th>Placebo (n = 124)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of Subjects Able to Ingest &gt; 600 mg of peanut protein or more, without dose-limiting symptoms (n, %)</td>
<td>250 (67.2%)</td>
<td>5 (4.0%)</td>
<td>P&lt;0.001</td>
</tr>
<tr>
<td>Systemic allergic reactions</td>
<td>14.2%</td>
<td>3.2%</td>
<td>N/A</td>
</tr>
<tr>
<td>Use of epinephrine outside of the DBPCFC</td>
<td>14.0%</td>
<td>6.5%</td>
<td>N/A</td>
</tr>
</tbody>
</table>
**Investigational Uses:**
- At this time, Palforzia has not been studied for any indication other than peanut allergy. Therefore, the use of Palforzia for any other condition or type of allergy is considered investigational.

**Dosing[1]**
- Palforzia is given in three phases (see Prescribing Information for full details). The first two phases are complex and require strict adherence. The maintenance dose is 300 mg per day.
  * Initial dosing and each dose increase during the up-dosing phase must be administered by a healthcare professional in a certified setting. Patients must be monitored for at least 60 minutes to following each provider-administered dose.
  * **Initial Dose Escalation:** Single doses of 0.5 mg up to 6 mg are administered at 20- to 30-minute intervals on day 1. On day 2, tolerability for 3 mg is confirmed and the patient moves into the up-dosing phase.
  * **Up-Dosing:** The dose is gradually increased from 3 mg to 300 mg with dose increases every two weeks.
  * **Maintenance:** 300 mg daily
  * For up-dosing, if the patient tolerates the first dose of the increased dose level, the patient may continue that dose level at home.

**Safety[1]**
- Due to safety concerns, Palforzia is only available through a restricted program called the PALFORZIA REMS. The program requires that providers, pharmacies, and healthcare settings are certified prior to use of Palforzia. Patients must also be enrolled in the REMS program. The program is designed to ensure that all stakeholders are aware of the risks and benefits of Palforzia, the signs of anaphylaxis, monitoring requirements, and that patients have access to injectable epinephrine at all times. [1 4]
- Palforzia has several serious warnings related to its use, including:
  * Palforzia oral can cause anaphylaxis that can occur at any time during therapy.
  * Palforzia oral should not be started in patients with uncontrolled asthma. It is a risk factor for worse outcomes with any anaphylactic reaction. Additionally, Palforzia oral has not been studied in patients with severe asthma, persistently uncontrolled asthma, or patients on long-term systemic corticosteroid therapy.
  * Palforzia oral is associated with eosinophilic esophagitis, a serious form of inflammation in the esophagus.
  * Palforzia oral is associated with high rates of mild to moderate gastrointestinal adverse reactions, such as abdominal pain, vomiting, nausea, oral pruritus, and oral paresthesia, which may impact tolerability.
- Palforzia has an unclear long-term risk-benefit profile due to the risk of serious allergic reactions and anaphylaxis and limited evidence for improvements in quality of life or reductions in systemic allergic reactions compared to strict avoidance of peanuts alone. Additional long-term studies will be needed to determine impacts on these endpoints and further assess the long-term safety profile.
## Appendix 1: Palforzia: Commercial Packaging for Self-Administration

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Kit Components (Capsules or Sachets)</th>
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<td>Initial Dosing</td>
<td>Each pack contains 13 capsules:</td>
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<td>Escalation</td>
<td>- 0.5 mg (Level A) One 0.5 mg capsule</td>
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<tr>
<td></td>
<td>- 1 mg (Level B) One 1 mg capsule</td>
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<td></td>
<td>- 1.5 mg (Level C) One 0.5 mg capsule; One 1 mg capsule</td>
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<tr>
<td></td>
<td>- 3 mg (Level D) Three 1 mg capsules</td>
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<td></td>
<td>- 6 mg (Level E) Six 1 mg capsules</td>
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<tr>
<td>Up-Dosing</td>
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<td>6 mg (Level 2)</td>
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<td>40 mg (Level 5)</td>
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<td>Maintenance</td>
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<td>300 mg (Level 11)</td>
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## Cross References

Sublingual Immunotherapy as a Technique of Allergen Specific Therapy, Medical Policy Manual, Policy No. 121
References

1. Palforzia [Prescribing Information]. Brisbane, CA: Aimmune Therapeutics, Inc; February 2020


Revision History

<table>
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<tr>
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<td>6/17/2022</td>
<td>No criteria changes made with this annual update.</td>
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| 4/21/2021     | • Added oral food challenge as a diagnostic option to confirm the diagnosis of peanut allergy.    
• Update ‘Investigational Uses’ - removed ‘use with Viaskin’ (not FDA approved) |
| 7/22/2020     | Revised diagnostic criteria to require a positive peanut specific IgE test or skin prick test. |
| 6/1/2020      | Correction to lab values. |
| 4/22/2020     | New policy (effective 5/15/2020). Limits coverage to patients with a confirmed diagnosis of peanut allergy the setting in which it was studied and has a labeled indication. |

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru637

Topic: Jelmyto, mitomycin for pyelocalyceal solution (mitomycin hydrogel)

Date of Origin: August 15, 2020

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Mitomycin hydrogel for pyelocalyceal use (Jelmyto) is chemotherapy medication used for specific types of cancer [low-grade Upper Tract Urothelial Cancer (LG-UTUC)]. It is a new formulation of mitomycin that is given directly into the urinary tract (ureters). It is administered by a trained provider via a catheter (ureteral catheter or nephrostomy tube). It is not for intravenous (IV) use.

PLEASE NOTE: This policy and the coverage criteria below do not apply to mitomycin injection (generic Mitomycin-C). Generic mitomycin injection (Mitomycin-C) does not require pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of mitomycin hydrogel for pyelocalyceal use (Jelmyto) prior to coverage.

I. Continuation of therapy (COT): Mitomycin hydrogel (Jelmyto) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Mitomycin hydrogel (Jelmyto) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that the patient has a diagnosis of low-grade Upper Tract Urothelial Carcinoma (LG-UTUC).
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider mitomycin for pyelocalyceal use (Jelmyto) to be a self-administered medication.

B. When pre-authorization is approved, up to 17 mitomycin hydrogel (Jelmyto) single-dose cartons (2x 40-mg vials) may be authorized per treatment course (up to 14 months).

IV. Mitomycin hydrogel (Jelmyto) is considered investigational when used for all other conditions, including use for intravenous (IV) infusion.

Position Statement

Summary

- Mitomycin hydrogel for pyelocalyceal use (Jelmyto) is a new formulation of mitomycin that is instilled into the ureters via a ureteral catheter or nephrostomy tube in patients with low-grade Upper Tract Urothelial Carcinoma (LG-UTUC). It is administered in a provider’s office.

- The intent of this policy is to allow coverage of mitomycin hydrogel (Jelmyto) where it has been evaluated and shown to be effective, up to the dose shown to be safe and effective in clinical trials.

- The evidence for mitomycin hydrogel (Jelmyto) is based on a small, non-comparative, non-blinded trial that evaluated tumor response rates in patients with LG-UTUC (low quality evidence). Although this therapy appears promising based on the disappearance of tumors in a fair proportion of patients, additional study is needed to better define its clinical benefit (e.g. preserve kidneys, improve overall survival).

- The National Comprehensive Cancer Network (NCCN) urothelial carcinoma guideline recommends using mitomycin hydrogel (Jelmyto) for LG-UTUC after complete or near complete endoscopic resection or ablation for low-volume (5 mm to 15 mm) residual tumors.

- Mitomycin hydrogel (Jelmyto) is instilled weekly for six weeks in the provider’s office. Patients with a complete response three months after therapy is initiated may receive up to 11 additional monthly maintenance doses.

- The maximum dose of mitomycin hydrogel (Jelmyto) is 15 ml (60 mg of mitomycin) per instillation. Each single-dose carton contains two 40 mg vials.

- There is insufficient evidence to support the use of mitomycin hydrogel (Jelmyto) for any other indication.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

- The evidence for mitomycin hydrogel for pyelocalyceal use (Jelmyto) is based on a small, non-comparative, non-blinded trial [OLYMPUS] that evaluated complete tumor response at 3 months in adult patients with LG-UTUC. [1,2]
  * Patients had either newly diagnosed or recurrent disease, and had at least one papillary low-grade tumor measuring at least 5 mm but no larger than 15 mm.
  * A complete response (tumor disappearance) was seen in 58% of patients at 3 months. Forty-six percent of patients had an ongoing complete response at the 12-month visit.

- Tumor response is a surrogate endpoint. Although the high number of complete responses is promising, additional study is needed to evaluate meaningful clinical outcomes such as preservation of kidneys, or improved overall survival or quality of life.

- The National Comprehensive Cancer Network (NCCN) urothelial carcinoma guideline recommends using mitomycin hydrogel (Jelmyto) for LG-UTUC after complete or near complete endoscopic resection or ablation for low-volume (5 mm to 15 mm) residual tumors (category 2A recommendation). [3]

Investigational Uses

- The safety and efficacy of mitomycin hydrogel (Jelmyto) have only been evaluated in adult patients with LG-UTUC.
- There are no other accepted therapeutic uses for this new mitomycin formulation.

Safety [1]

- Grade 3 or greater adverse events (AEs) that occurred in at least 2% of subjects in the pivotal mitomycin hydrogel (Jelmyto) clinical trial included ureteric stenosis, hydronephrosis, flank pain, urinary tract infection, hematuria, renal dysfunction, and vomiting.

- About one-quarter of patients enrolled in the pivotal trial discontinued mitomycin hydrogel (Jelmyto) due to a side effect.

Dosing [1]

- Each mitomycin hydrogel for pyelocalyceal use (Jelmyto) kit (containing two 40-mg single-dose vials of and one vial of sterile hydrogel for reconstitution) is suitable for one instillation.
- Mitomycin hydrogel (Jelmyto) must be administered by a trained provider.
- The actual dose of mitomycin hydrogel (Jelmyto) is determined based on volumetric measurements using pyelography. The maximum dose per instillation is 15 ml (60 mg mitomycin).
- Dosing schedule:
  
  * **Initial dose:** one instillation weekly for six weeks.
  
  * **Maintenance:** If a complete response is maintained three months from the initiation of therapy, up to 11 additional monthly instillations of mitomycin hydrogel (Jelmyto) may be given.
  
  * The safety and efficacy of mitomycin hydrogel (Jelmyto) beyond 17 total instillations (one treatment course) has not been studied.

### Cross References

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<th>Codes</th>
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### References


### Revision History

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<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>New policy (effective 8/15/2020). Limits coverage to adult patients with LG-UTUC for up to 17 total instillations (one single-dose carton includes 2 x 40 mg vials of mitomycin for pyelocalyceal use).</td>
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</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Viltepso, viltolarsen

Committee Approval Date: January 20, 2021

Effective Date: April 1, 2021

Policy No: dru640

Date of Origin: June 15, 2020

Next Review Date: January 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Viltolarsen (Viltepso) is an intravenous medication that may be used for Duchenne muscular dystrophy (DMD) when patients have a specific gene mutation. A clinical benefit, such as improved ambulation, of viltolarsen (Viltepso) has not been established.
Policy/Criteria

Most contracts require pre-authorization approval of viltolarsen (Viltepso) prior to coverage.

I. **Continuation of therapy (COT):** Viltolarsen (Viltepso) is considered investigational for all conditions, per the full policy criteria below.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Viltolarsen (Viltepso) is considered investigational for all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 53 skipping (Table 1).

Position Statement

*Summary*

- Viltolarsen (Viltepso) is an intravenous therapy indicated for the treatment of Duchenne muscular dystrophy (DMD) when there is a confirmed mutation of the DMD gene that is amenable to exon 53 skipping. It was approved through the FDA Accelerated Approval Program based on an increase in dystrophin in skeletal muscles observed in some patients during a phase II trial. [1]

- A clinical benefit (e.g. prolongation of independent ambulation, improved quality of life, or prevention of disease progression and disability) of viltolarsen (Viltepso) has not been established.

  * In one open-label trial in a total of 16 patients, of which only 8 received the approved dose, viltolarsen (Viltepso) was shown to increase dystrophin levels. However, it has not been proven that an increase in dystrophin will translate to improved clinical outcomes, such as improved motor function.

- The U.S. Centers for Disease Control and Prevention (CDC) has developed general management guidelines for DMD. The CDC recommends corticosteroids and supportive care to slow disease progression. These guidelines were published prior to the submission of viltolarsen (Viltepso) to the FDA, thus the use of viltolarsen (Viltepso) for DMD has not yet been addressed. [2-4]

*Clinical Efficacy*[5]

- Evidence regarding the effect of viltolarsen (Viltepso) on dystrophin levels is inconclusive. Data is limited to a small, two-part, dose escalation, phase II trial. Additional, larger, well-controlled trials are needed to establish the safety and efficacy of viltolarsen (Viltepso) in Duchenne muscular dystrophy (DMD).
In the phase II trial, 16 patients were initially randomized to receive either placebo (n=5), viltolarsen (Viltepso) 40 mg/kg (n=6), or viltolarsen (Viltepso) 80 mg/kg (n=5) via intravenous route weekly for 4 weeks. After 4 weeks, all patients, received open-label viltolarsen (Viltepso) at a dose of either 40 mg/kg (n=8) or 80 mg/kg (n=8) intravenously once weekly. The mean dystrophin levels increased to 5.9% of normal in the viltolarsen (Viltepso) 80 mg/kg group; the approved dose, at 25 weeks.

- Dystrophin production is a surrogate biomarker of disease improvement with an unknown correlation to health outcomes.
- An absolute increase in dystrophin levels has not been correlated to improved ambulation or muscle function and a minimal clinically important difference in dystrophin levels has not yet been established. Experts have proposed that dystrophin levels greater than or equal to 10% of normal may be clinically meaningful; however, validation is needed.

Lack of an appropriate control group, duration, and size of the viltolarsen (Viltepso) trial, makes it impossible to demonstrate any meaningful conclusions regarding endpoints with functional outcomes, including 6MWT and pulmonary function resulting from viltolarsen (Viltepso) treatment. Long-term comparative evidence is needed to further clarify the role of viltolarsen (Viltepso).

Viltolarsen (Viltepso) has not yet been shown to improve any clinical outcomes such as quality of life, prolongation of independent ambulation, or prevention of disease progression and disability.

**Safety [1]**

- Limited safety data is available, however, the most common adverse reactions reported with viltolarsen (Viltepso) during trials included upper respiratory tract infections, injection site reactions, cough, and pyrexia.
- Viltolarsen (Viltepso) contains a warning for kidney toxicity based on experience with other antisense oligonucleotides. Monitoring of kidney function is recommended.

### Table 1: Mutations Amenable to Exon 53 skipping

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Cross References

- Exondys 51, eteplirsen, Medication Policy Manual, Policy No. dru480
- Vyondys 53, golodirsen, Medication Policy Manual, Policy No. dru606

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Revision History

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Medication Policy Manual

Policy No: dru645

Topic: Trodelvy, sacituzumab govitecan-hziy

Date of Origin: August 15, 2020

Committee Approval Date: June 17, 2022

Next Review Date: September 2022

Effective Date: September 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Trodelvy (sacituzumab govitecan-hziy) is an intravenous medication that is used in the treatment of specific types of cancer.
Policy/Criteria

Most contracts require pre-authorization approval of Trodelvy (sacituzumab govitecan-hziy) prior to coverage.

I. Continuation of therapy (COT): Trodelvy (sacituzumab govitecan-hziy) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Trodelvy (sacituzumab govitecan-hziy) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below are met.

A. A diagnosis of advanced triple-negative breast cancer (TNBC) when criteria 1 and 2 below are met:
   1. There has been disease progression on at least two prior systemic regimens in the advanced setting.
   AND
   2. Trodelvy (sacituzumab govitecan-hziy) is used as monotherapy.

OR
B. A diagnosis of **advanced urothelial carcinoma (bladder cancer)** when criteria 1 and 2 below are met:

1. There has been clinical documentation of disease progression on at least two prior therapies including BOTH of the following:
   a. A platinum-based regimen (such as cisplatin, carboplatin).
   AND
   b. A checkpoint inhibitor (programmed death receptor-1 (PD-1) or programmed death-ligand 1 (PD-L1) inhibitor (see Appendix 2).
   AND
2. Trodelvy (sacituzumab govitecan-hziy) is used as monotherapy.

III. **Administration, Quantity Limitations, and Authorization Period**

A. Regence Pharmacy Services considers Trodelvy (sacituzumab govitecan-hziy) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Trodelvy (sacituzumab govitecan-hziy) will be authorized in quantities of up to two doses of 10 mg/kg every 21 days until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Trodelvy (sacituzumab govitecan-hziy) is considered investigational when used for all other conditions.

**Position Statement**

**Summary**

- Trodelvy (sacituzumab govitecan-hziy) is a Trop-2-directed antibody and topoisomerase inhibitor conjugate that binds to Trop-2-expressing cancer cells and causes cell death. [1]

- The intent of this policy is to allow coverage of Trodelvy (sacituzumab govitecan-hziy) where it has been shown to be effective, up to the dose shown to be safe and effective in clinical trials (as detailed in the coverage criteria).

- The initial approval of Trodelvy (sacituzumab govitecan-hziy) was based on a single-arm, open-label, basket trial. [2] Subsequently, Trodelvy (sacituzumab govitecan-hziy) was studied in a multicenter, open-label, randomized trial in patients with relapsed advanced TNBC after two prior therapies in the advanced setting. [3] Despite the limited evidence, given the context in which it has been studied as salvage therapy, Trodelvy (sacituzumab govitecan-hziy) may offer value in this salvage clinical setting when standard therapies for advanced TNBC are exhausted.
Subsequently, Trodelvy (sacituzumab govitecan-hziy) was approved for use in patients with advanced urothelial cancer who had prior treatment with platinum-based chemotherapy and a checkpoint inhibitor (PD-1 or PD-L1 inhibitor). The approval was based on a single-arm, multicenter trial. The safety and efficacy of Trodelvy (sacituzumab govitecan-hziy) in patients not previously treated with both platins and a PD-1/PD-L1 inhibitor is unknown. Tolerability may limit utility in patients unfit for chemotherapy, including platins.

The use of Trodelvy (sacituzumab govitecan-hziy) is associated with significant side effects, which may limit clinical utility.

The NCCN guideline lists Trodelvy (sacituzumab govitecan-hziy) among many other potential therapies for advanced TNBC, as well as UC.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy

Triple-Negative Breast Cancer (TNBC)

- The initial efficacy of Trodelvy (sacituzumab govitecan-hziy) for FDA approval in mTNBC was based on a multicenter, phase 1/2, open-label, single-arm, basket-trial.
  * Patients had at least two prior systemic regimens in the metastatic setting (median of 3) and ~70% had prior platinum (carboplatin or cisplatin).
  * At the time of data cutoff used for the FDA review, the median duration of follow-up was 9.7 months. Approximately one-third of patients demonstrated an objective response rate (ORR), and 2.8% of patients achieved a complete response.
While an ORR was observed, ORR is a surrogate endpoint which has not been shown to reliably predict clinically relevant outcomes such as improved overall survival (OS). The lack of clinically meaningful outcomes such as OS makes interpretation of ORR difficult.

Subsequently, a multicenter, open-label, randomized trial, studied Trodelvy (sacituzumab govitecan-hziy) in patients with unresectable locally advanced or mTNBC. Patients had relapsed after at least two prior chemotherapies for breast cancer (one of which could be in the neoadjuvant or adjuvant setting).

Patients were randomized to sacituzumab govitecan or physician’s choice of single agent chemotherapy (eribulin, capecitabine, gemcitabine, or vinorelbine).

The median overall survival (OS) was 12.1 months in the sacituzumab govitecan treatment group and 6.7 months in the chemotherapy treatment group.

The National Comprehensive Cancer Network (NCCN) guidelines for the management of recurrent or mTNBC breast cancer recognizes Trodelvy (sacituzumab govitecan-hziy) among many potential treatment options in the advanced setting. It is listed as a lower-level recommended treatment option meaning the quality of evidence is low, but there was a consensus among oncologists on the panel for inclusion on the guideline.

Advanced Urothelial Cancer (UC)

The safety and efficacy of Trodelvy (sacituzumab govitecan-hziy) was evaluated in a single-arm, multicenter trial in 113 patients with locally advanced or metastatic urothelial cancer who received prior treatment with a platinum-containing chemotherapy and either a PD-1 or PD-L1 inhibitor.

Patients had a median of three prior systemic therapies (range 1 to 8) and 96% of patients had metastatic disease.

The ORR was 27.4% and the duration of response was 7.2 months; however, ORR and duration of response have not been shown to reliably predict clinically relevant outcomes.

For the management of locally advanced or metastatic urothelial cancer, NCCN guidelines recommend:

- Cisplatin-based regimens in the front-line setting (category 1).
- Programmed death receptor-1 (PD-1) or programmed death-ligand 1 (PD-L1) inhibitors are preferred as second-line therapies (pembrolizumab monotherapy category 1, other PD-1 and PD-L1 inhibitor therapies category 2A).
- Subsequent-line therapies include Padcev (enfortumab vedotin) (category 1), single- or multi-agent chemotherapy or Trodelvy (sacituzumab govitecan-hziy) (category 2A recommendations), or Balversa (erdafitinib) for patients with susceptible FGFR3 or FGFR2 genetic alterations.
Safety
- The most common adverse events (incidence of 25% or more) reported with Trodelvy (sacituzumab govitecan-hziy) include nausea, neutropenia, diarrhea, fatigue, anemia, vomiting, alopecia, constipation, rash, decreased appetite, and abdominal pain. [1]
- Trodelvy (sacituzumab govitecan-hziy) has a Boxed Warning for neutropenia and diarrhea.

Dosing
- The recommended dose of Trodelvy (sacituzumab govitecan-hziy) is 10 mg/kg administered as an intravenous infusion once weekly on days 1 and 8 of 21-day treatment cycles.

### Appendix 1: Chemotherapy Agents Used in the Treatment of Advanced Breast Cancer

<table>
<thead>
<tr>
<th>Preferred Single Agents</th>
<th>Chemotherapy Combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anthracyclines</strong></td>
<td>AC: doxorubicin/cyclophosphamide</td>
</tr>
<tr>
<td>doxorubicin (generic Adriamycin)</td>
<td>EC: epirubicin/cyclophosphamide</td>
</tr>
<tr>
<td>Doxil (doxorubicin liposomal)</td>
<td>CMF: cyclophosphamide/methotrexate/fluorouracil</td>
</tr>
<tr>
<td><strong>Taxanes</strong></td>
<td>docetaxel/capecitabine (generic Xeloda)</td>
</tr>
<tr>
<td>paclitaxel (generic Taxol)</td>
<td>GT: gemcitabine/paclitaxel</td>
</tr>
<tr>
<td><strong>Anti-metabolites</strong></td>
<td>gemcitabine/carboplatin</td>
</tr>
<tr>
<td>capecitabine (generic Xeloda)</td>
<td>paclitaxel/bevacizumab</td>
</tr>
<tr>
<td>gemcitabine (generic Gemzar)</td>
<td>carboplatin + paclitaxel or albumin-bound paclitaxel</td>
</tr>
<tr>
<td><strong>Other microtubule inhibitors</strong></td>
<td></td>
</tr>
<tr>
<td>vinorelbine (generic Navelbine)</td>
<td></td>
</tr>
<tr>
<td>Halaven (eribulin)</td>
<td></td>
</tr>
<tr>
<td><strong>Other Single Agents</strong></td>
<td></td>
</tr>
<tr>
<td>cyclophosphamide (generic Cytoxan)</td>
<td>cisplatin</td>
</tr>
<tr>
<td>carboplatin</td>
<td>epirubicin</td>
</tr>
<tr>
<td>docetaxel</td>
<td>Ixempra (ixabepilone)</td>
</tr>
<tr>
<td>Abraxane (nab-paclitaxel)</td>
<td>Trodelvy (sacituzumab govitecan-hziy; for TNBC)</td>
</tr>
</tbody>
</table>
Appendix 2: PD-1 and PD-L1 Inhibitors Indicated for Use in Bladder Cancer *

<table>
<thead>
<tr>
<th>PD-1 Inhibitors</th>
<th>PD-L1 Inhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opdivo (nivolumab)</td>
<td>Tecentriq (atezolizumab)</td>
</tr>
<tr>
<td>Keytruda (pembrolizumab)</td>
<td>Bavencio (avelumab)</td>
</tr>
<tr>
<td></td>
<td>Imfinzi (durvalumab)</td>
</tr>
</tbody>
</table>

* List current as of the approval date of this policy and may not be all-inclusive

Cross References

<table>
<thead>
<tr>
<th>Medication</th>
<th>Reference No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abraxane, nab-paclitaxel</td>
<td>Medication Policy Manual, Policy No. dru310</td>
</tr>
<tr>
<td>Balversa, erdafitinib</td>
<td>Medication Policy Manual, Policy No. dru593</td>
</tr>
<tr>
<td>Padcev, enfortumab vedotin</td>
<td>Medication Policy Manual, Policy No. dru622</td>
</tr>
</tbody>
</table>

Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J9317</td>
<td>Injection, sacituzumab govitecan-hziy (Trodelvy), 2.5 mg</td>
</tr>
</tbody>
</table>

References

### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/17/2022</td>
<td>No criteria changes with this annual update.</td>
</tr>
<tr>
<td>10/15/2021</td>
<td>Added coverage for new indication in advanced urothelial cancer.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Updated diagnosis criterion from “metastatic triple-negative breast cancer” to “advanced triple-negative breast cancer” based on FDA indication update.</td>
</tr>
<tr>
<td>1/20/2021</td>
<td>Removed platin requirement from coverage criteria.</td>
</tr>
<tr>
<td>07/22/2020</td>
<td>New policy (effective 8/15/2020). The intent of this policy is to allow coverage of Trodelvy (sacituzumab govitcan-hziy) where it has been shown to be effective, up to the dose shown to be safe and effective in clinical trials</td>
</tr>
</tbody>
</table>

**Drug names identified in this policy are the trademarks of their respective owners.**
Medication Policy Manual

Policy No: dru648

Topic: Medications for thrombocytopenia:

- Doptelet, avatrombopag
- Mulpleta, lusutrombopag
- Nplate, romiplostim
- Promacta, eltrombopag
- Tavalisse, fostamatinib

Date of Origin: October 1, 2020

Committee Approval Date: June 17, 2022

Effective Date: September 1, 2022

Next Review Date: June 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

This policy is for specific medications used in the treatment of thrombocytopenia, both oral and injectable.

PLEASE NOTE: For IVIG coverage requirements, see the IVIG-specific medication policy (dru020).
Policy/Criteria

Most contracts require pre-authorization approval of medications for thrombocytopenia prior to coverage.

I. **Continuation of therapy (COT):** Medications for thrombocytopenia may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

      AND

      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve):** Medications for thrombocytopenia may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that one of the following criterion A through E below are met.

   A. **Chronic idiopathic thrombocytopenia (ITP),** also known as “immune thrombocytopenia,” when criteria 1, 2, and 3 below are met:

      For Doptelet (avatrombopag), Nplate (romiplostim), Promacta (eltrombopag), and Tavalisse (fostamatinib) Only:

      1. The diagnosis of **chronic ITP** has been made by, or in consultation with, a specialist in hematology.

      AND

      2. The patient is at risk of spontaneous bleeding as demonstrated by either one of the following criterion a or b below:

         a. Platelet count less than 20 x 10⁹/L.

         OR

         b. Platelet count less than 30 x 10⁹/L accompanied by symptoms of bleeding.

   These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
AND
3. Prior treatment with an adequate course of systemic corticosteroids (e.g., prednisone 1 to 2 mg/kg for 2 to 4 weeks, or pulse dexamethasone 40 mg daily for 4 days).

OR
B. Thrombocytopenia in adult patients with chronic liver disease (CLD) who are scheduled to undergo a procedure when criteria 1 through 4 below are met.

For Doptelet (avatrombopag) and Mupletra (lusutrombopag) Only:
1. A diagnosis of thrombocytopenia and chronic liver disease (CLD) established by or in consultation with a specialist in hematology or hepatology.

AND
2. Platelet count less than 50 x 10⁹/L.

AND
3. Planned invasive procedure within the next 14 days.

AND
4. Mupletra (lusutrombopag) Only: Treatment with Doptelet (avatrombopag) was not effective, not tolerated or use is contraindicated.

OR
C. Thrombocytopenia associated with hepatitis C (HCV) when criterion 1 below is met.

For Promacta (eltrombopag) Only:
1. A diagnosis of thrombocytopenia associated with hepatitis C (HCV) and the patient is unable to initiate or maintain interferon (IFN) therapy due to platelet count less than 75 x 10⁹/L, and a Child-Pugh level A (score 5-6). (See Appendix A)

OR
D. Severe aplastic anemia when criteria 1, 2, and 3 below are met:

For Promacta (eltrombopag) Only:
1. The diagnosis of severe aplastic anemia has been made by, or in consultation with a specialist in hematology.

AND
2. Documentation of a baseline severe cytopenia (severe aplastic anemia), with at least two of the following three criteria:
   a. Reticulocyte count less than 20 x 10⁹/L
   b. Platelet count less than 20 x 10⁹/L
   c. Absolute neutrophil count (ANC) less than 500 cells/mm³

AND
3. Baseline platelet count of less than 30,000/mm³.
OR

E. Hematopoietic syndrome of acute radiation syndrome when criteria 1 below is met:

For Nplate (romiplostim) Only:
1. A diagnosis of hematopoietic syndrome of acute radiation syndrome.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Nplate (romiplostim) coverable only under the medical benefit (as a provider-administered medication).

B. Pharmacy Services considers all oral medications coverable only under the pharmacy benefit (as self-administered medications).

C. When pre-authorization is approved, medications for thrombocytopenia will be authorized in quantities and authorization periods as listed in Table 1.

TABLE 1.

<table>
<thead>
<tr>
<th>Quantity Limit/Authorization</th>
<th>Initial:</th>
<th>Re-authorization:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic ITP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dopettelet (avatrombopag):</td>
<td>12 weeks</td>
<td>Continued authorization (after the initial 12-week period) shall be reviewed at least annually to confirm that current medical necessity criteria are met, the dose is within the dose limits, and that the patient’s recent (within the last 90 days) platelet count is either:</td>
</tr>
<tr>
<td>Up to 40 mg per day.</td>
<td></td>
<td>1. Equal to or greater than 30 x 10^9/L but not more than 150 x 10^9/L.</td>
</tr>
<tr>
<td>Promacta (eltrombopag):</td>
<td></td>
<td>OR 2. Less than 30 x 10^9/L but platelet counts have increased from baseline accompanied with a resolution of previous bleeding.</td>
</tr>
<tr>
<td>Up to 75 mg per day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tavalisse (fostamatinib):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 300 mg per day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nplate (romiplostim):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 10 mcg/kg/dose</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **CLD, scheduled to undergo a procedure** |         |                  |
| Dopettelet (avatrombopag): 15 tablets per treatment course. | One treatment course | No reauthorization. Apply Initial authorization criteria for any additional procedures. |
| Mulpleta (lusutrombopag): 7 tablets per treatment course. |         |                  |

<p>| <strong>Thrombocytopenia associated with HCV</strong> |         |                  |
| Promacta (eltrombopag): Up to 100 mg per day. | 12 weeks | The patient remains on interferon/ribavirin therapy and platelet count is less than 400 x 10^9/L. |</p>
<table>
<thead>
<tr>
<th>Quantity Limit/Authorization</th>
<th>Initial:</th>
<th>Re-authorization:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aplastic anemia</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Promacta (eltrombopag):** Up to 150 mg per day. | 16 weeks | The patient has a documented hematologic response, based on blood counts AND/OR a reduced need for blood products. **INITIAL REAUTHORIZATION:** Based on the patient’s recent (within the last 90 days) blood counts, the patient has a demonstrated hematologic response, defined as one of the following (a through d). The documented baseline cytopenia and/or transfusion needs will be used for demonstration of hematologic response.  

- a. Platelet count equal to or greater than 30 x 10^9/L but not more than 150 x 10^9/L AND transfusion independence (no blood product transfusions given) for 8 consecutive weeks. **OR**
- b. Platelet count less than 30 x 10^9/L but 20 x 10^9/L more than baseline. **OR**
- c. Reduction in RBC transfusions (of at least 4 units) for 8 consecutive weeks or hemoglobin increase of at least 1.5 g/dL from baseline. **OR**
- d. Absolute neutrophil count (ANC) increase of 100% from baseline or an ANC increase greater than 500/mm^3. **CONTINUED AUTHORIZATION:** Documentation of recent blood counts/transfusion records (within the last 90 days) that the patient is able to maintain blood counts or ongoing reduced need for blood products, as defined in the initial re-authorization above. |
| **Hematopoietic syndrome of acute radiation syndrome** | | |
| **Nplate (romiplostim):** Up to 10 mcg/kg/dose | One treatment course | No reauthorization. Apply Initial authorization criteria for any additional exposures. |
D. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Medications for thrombocytopenia are considered investigational when used for all other conditions, including but not limited to:

A. Acute thrombocytopenia.

B. Low platelet counts secondary to other conditions or diseases [including, but not limited to, cancer, HIV, and myelodysplastic syndrome (MDS)], except as listed in the coverage criteria.

C. Drug-induced thrombocytopenia [e.g., chemotherapy, heparin (HIT)], except as listed in the coverage criteria.

D. Thrombocytopenia secondary to disseminated intravascular coagulation, hemangiomas, or platelet loss (massive bleeding).

E. Thrombotic thrombocytopenic purpura/hemolytic-uremic syndrome (TTP/HUS).

F. Pancreatitis (other than aplastic anemia).

G. For Promacta (eltrombopag): Use in combination with ATG (or within 4 months) for aplastic anemia.

H. For Tavalisse (fostamatinib): Rheumatoid arthritis.

Position Statement

Summary

The intent of this policy is to cover medications for thrombocytopenia (as listed in Table 1) for the indications and dose for which they have been shown to be safe and effective, as detailed in the coverage criteria above:

* Chronic idiopathic thrombocytopenia (ITP), when traditional first line therapies are ineffective or not a treatment option, as detailed in the coverage criteria.

* Aplastic anemia, when traditional first line therapies are ineffective or not a treatment option, as detailed in the coverage criteria [Promacta (eltrombopag) only].

* Patients with hepatitis C virus (HCV), when the patient is unable to remain on interferon (IFN) therapy due to thrombocytopenia [Promacta (eltrombopag) only].

* Prior to a planned invasive procedure in patients with chronic liver disease (CLD) and significant thrombocytopenia [Doptelet (avatrombopag) and Mulpleta (lusutrombopag) only].

* Hematopoietic Syndrome of Acute Radiation Syndrome [Nplate (romiplostim) only].
Medications for thrombocytopenia (as listed in Table 1) in this policy include:

* Thrombopoietin receptor agonists (TPO RAs): Nplate (romiplostim), Promacta (eltrombopag), Doptelet (avatrombopag), and Mulpleta (lusutrombopag).

* Kinase inhibitor: Tavalisse (fostamatinib).

**Chronic ITP**

Medications for thrombocytopenia used for ITP [Doptelet (avatrombopag), Nplate (romiplostim), Promacta (eltrombopag), Tavalisse (fostamatinib)] have only been studied in patients for whom traditional treatments have been ineffective. Current guidelines recommend steroids as a first-line treatment for ITP. Splenectomy (a surgical treatment option), rituximab, and TPO RAs are among recommended treatment options for refractory chronic ITP. Splenectomy and rituximab can put patients into long-term clinical remission. TPO RAs on the other hand, must be dosed continually to see benefit. [1]

The safety and efficacy of TPO RAs or Tavalisse (fostamatinib) used for ITP were established in placebo-controlled trials in patients with low platelet counts despite at least one prior treatment for ITP.

There are no clinical trials that have demonstrated a superior benefit of TPO RAs or Tavalisse (fostamatinib) over therapies such as corticosteroids, immunoglobulin, splenectomy, rituximab, or thrombopoietin receptor agonists.

**Thrombocytopenia associated with HCV**

Eltrombopag is also used to treat thrombocytopenia in patients with chronic hepatitis C to allow the initiation and maintenance of interferon-based therapy. Safety and efficacy of eltrombopag has not been established for use in combination with direct-acting antivirals, such as protease inhibitors or polymerase inhibitors. [2 3]

**Aplastic anemia**

Aplastic anemia is a rare, life-threatening condition, characterized by trilineage bone marrow hypoplasia, which leads to anemia, neutropenia, and thrombocytopenia.[4-7]

* Aplastic anemia is usually treatable with allogeneic stem cell transplantation (HSCT), the only curative therapy, or immunosuppression therapy (IST) of antithymocyte globulin (ATG) with cyclosporine. Response to IST is delayed, usually three to four months; therefore, ongoing support of cytopenias is expected.

* There is no standard therapy for refractory aplastic anemia patients who are unable to undergo a HSCT. Treatment is generally supportive with red cell and platelet transfusions and treatment of infections, but may include eltrombopag as a treatment option.

* In clinical trials, hematologic response to eltrombopag was based on improvement in blood counts and/or a reduced need for blood products. A patient’s baseline cytopenia(s) and/or transfusion dependence must be considered when evaluating response to eltrombopag and the need for continued therapy.
Chronic Liver Disease (CLD), scheduled to undergo a procedure

- The safety and efficacy of both Doptelet (avatrombopag) and lusutrombopag in patients with CLD who were scheduled to undergo a procedure was established in two placebo-controlled trials. The trials evaluated a reduction in platelet transfusions or rescue therapy; however, reductions in bleeding rates were not assessed. [8]

- There are no trials comparing Doptelet (avatrombopag) or Mulpleta (lusutrombopag) to each other or any other medication or treatment for CLD associated thrombocytopenia. There is no evidence that one is superior to one another in terms of safety or efficacy; however, Doptelet (avatrombopag) is the lowest cost.

- “Medications for thrombocytopenia” may be covered for up to the doses shown to be safe and effective in clinical trials, as detailed in the coverage criteria above.

- There is insufficient evidence to support the safety or efficacy of “medications for thrombocytopenia” in any other condition or type of thrombocytopenia, including chemotherapy-induced thrombocytopenia, except as listed in the coverage criteria.

Clinical Efficacy

Refractory ITP

- Avatrombopag was studied in one small, phase 3, randomized, double-blind, placebo-controlled trial in patients with ITP refractory to one or more ITP therapies (corticosteroids, immunoglobulins, azathioprine, danazol, cyclophosphamide, rituximab).[8]

  * Patients had a baseline platelet count of less than 30 x 10⁹/L.

  * Although the study demonstrated that avatrombopag improves platelet levels compared to placebo, its effect on more clinically meaningful outcomes (e.g., overall survival, decreased incidence of bleeding, need for rescue therapies) is unknown.

- Tavalisse (fostamatinib) was studied in two phase 3, randomized, double-blind, placebo-controlled trials in patients with ITP refractory to one or more ITP therapies (including corticosteroids, immunoglobulins, splenectomy, rituximab or a TPO RA). Patients were allowed to continue with their stable concurrent ITP therapy. [9]

  * The primary endpoint was a stable platelet response (defined as platelets ≥50 x 10⁹/L).

  * In the first trial, significantly more patients achieved a stable platelet response when treated with fostamatinib compared to placebo. In the second trial, the difference in stable platelet response was numerically greater, but did not reach statistical significance. Although increases in platelet count were observed in clinical trials, it is unknown how platelet response correlates to more clinically meaningful outcomes (e.g., overall survival, decreased incidence of bleeding).

- Romiplostim has been proven in clinical studies to be more effective for increasing platelets than placebo. [1 11]

  * For every two non-splenectomized patients who received romiplostim, one patient maintained platelet counts above 50 x 10⁹/L for 6 weeks during the last 8 weeks of the trial.
* For every three splenectomized patients who received romiplostim, one patient maintained platelet counts above 50 x 10⁹/L for 6 weeks during the last 8 weeks of the trial.

- Eltrombopag has been proven in clinical studies to be more effective for increasing platelets than placebo. [1 11]

* Eltrombopag may increase platelet counts; however, its effectiveness past 6 months is uncertain.

* Because the risk of bleeding is only prominent when platelet count drops below 20 x 10⁹/L, it is difficult to quantify the clinical benefit of treatment when half of the patients in the studies had platelet count above 20 x 10⁹/L at baseline.

- It is uncertain whether the increase in platelets with “medications for ITP” is sustainable long term (beyond 24 to 52 weeks) and whether “medications for ITP” decreases bleeding episodes or other complications in patients with chronic ITP. Effect on overall survival is unknown, given the lack of evidence. [11] Overall, long term data are lacking.

- Standard of care therapies are effective for many patients with chronic ITP.
  
  * Around one-third of patients may expect a long-term response from treatment with an oral corticosteroid. Corticosteroids should be rapidly tapered and stopped in patients who fail to respond after 4 weeks. [1]
  
  * Up to two-thirds of patients with ITP who undergo splenectomy may achieve a normal platelet count, which is often sustained with no additional therapy. [1]

- Principles of treatment for ITP
  
  * A normal platelet count in a healthy person is between 150 x 10⁹/L and 400 x 10⁹/L. The goal of treatment for chronic ITP should be to maintain a safe platelet count, not to achieve a normal platelet count. [1]
  
  * Choosing Wisely, an evidence-based initiative to promote wise use of medical resources, states that patients with ITP should not be treated in the absence of bleeding or a very low platelet count. Only rarely should patients be treated when platelet counts are above 30 x 10⁹/L, such a preparation of surgery or an invasive procedure. Unnecessary treatment exposes patients to potential adverse events and raises the overall cost of care, with unknown clinical benefit.
  
  * The risk of bleeding and mortality increases as platelet counts drops below 20 or 30 x 10⁹/L but there are large individual variations. [14 15]
  
  * Taking in to account the slow time to response of TPO receptor agonists or TKIs and frequent platelet lability in refractory ITP patients, ongoing use of medications for ITP may be needed for patients with platelets well above the critical threshold, such as over 30 x 10⁹/L but less than 150 x 10⁹/L.

- There are no studies evaluating the efficacy of “medications for ITP” compared to other refractory ITP treatment options. Trials of “medications for ITP” were conducted in patients refractory to standard treatments, such as corticosteroids, immunoglobulins, rituximab, cytotoxic therapies, danazol, and azathioprine.
Thrombocytopenia in HCV

- Two randomized-controlled studies for the treatment of thrombocytopenia in adult patients with chronic hepatitis C compare eltrombopag to placebo. Eltrombopag was administered in combination with pegylated interferon and ribavirin for up to 48 weeks. The primary efficacy endpoint for both trials was sustained virologic response (SVR) defined as the percentage of patients with undetectable HCV-RNA at 24 weeks after completion of antiviral treatment. The median time to achieve the target platelet count ≥90 x 10^9/L was approximately 2 weeks. Ninety-five percent of patients were able to initiate interferon therapy. In both trials, a significantly greater proportion of patients treated with eltrombopag achieved SVR.

- Eltrombopag was only studied in patients trying to receive interferon therapy.
  * There is no data on the safety and efficacy of eltrombopag in HCV patients on direct-acting antivirals.
  * There is insufficient evidence to support the use of eltrombopag in patients with thrombocytopenia associated with chronic liver disease (CLD), in the absence of trying to initiate and maintain interferon therapy for HCV. This includes CLD patients with liver failure and/or cirrhosis and patients undergoing an invasive procedure. [8,9]

- Eltrombopag doses should be lowered when platelet levels are between 200 x 10^9/L and 400 x 10^9/L and stopped when platelets are over 400,000 x 10^9/L. [1]

Chronic Liver Disease (CLD)

- Avatrombopag was studied in two phase 3, randomized, double-blind, placebo-controlled, clinical trials (ADAPT-1 and ADAPT-2) in patients with chronic liver disease and platelet counts less than 50 x 10^9/L who were scheduled to undergo an invasive procedure. [8]
  * The studies found that significantly more patients treated with avatrombopag did not require a platelet transfusion or rescue therapy for bleeding up to 7 days after the scheduled procedure compared to patients treated with placebo.
  * In addition, more patients across both trials achieved the target platelet count of ≥50 x10^9/L on the day of the procedure.

- Lusutrombopag was evaluated in two phase 3, randomized, double-blind, placebo-controlled trials (L-PLUS 1 and L-PLUS 2) in patients with chronic liver disease and platelet counts less than 50 x 10^9/L who were scheduled to undergo an invasive procedure.
  * In both trials, a greater proportion of patients who received lusutrombopag did not require a platelet transfusion prior to the primary procedure compared to the placebo treatment group.
  * Additionally, in L-PLUS 2 a higher proportion of patients treated with lusutrombopag did not require rescue therapy from bleeding compared to the placebo treatment group.
Aplastic Anemia

- One non-randomized, open-label single-arm study evaluated the use of eltrombopag in combination with immunosuppressive therapy (ATG plus cyclosporine) as first-line treatment in 92 patients with severe aplastic anemia. [17]

  * Efficacy was established on the basis of complete hematological response at 6 months. A complete response was defined as hematological parameters meeting all 3 of the following values on 2 consecutive serial blood count measurements at least one week apart: absolute neutrophil count (ANC) > 1,000/mcL, platelet count > 100 x x 10⁹/L and hemoglobin > 10 g/dL.

  * At six months 38 people (44%) of patients had a complete response. The overall and complete hematological response rates at Year 1 (N=78) are 56.4% and 38.5% and at Year 2 (N=62) are 38.7% and 30.6%, respectively.

- One non-randomized, open-label single-arm study evaluated the use of eltrombopag in 43 adult patients with severe aplastic anemia refractory to immunosuppressive therapy (ATG plus cyclosporine). [3 4]

  * All patients had a confirmed diagnosis of severe aplastic anemia, prior use of ATG with cyclosporine, and a baseline platelet count of ≤ 30 x 10⁹/L.

  * Eltrombopag was initiated at 50 mg per day for up to 12 weeks. Doses were titrated by 50 mg per day every 2 weeks, up to a maximum of 150 mg per day.

  * The primary efficacy endpoint was hematologic response, defined as a clinically significant change in blood counts or transfusion independence (uni- or multilineage response) at 12 weeks. Response was defined as at least of the following criteria:

    1. Platelet response: increases ≥ 20 x 10⁹/L from baseline, or stable platelet counts with transfusion independence for ≥ 8 weeks.

    2. Erythroid response (if Hgb < 9 at baseline): Hemoglobin increase ≥1.5 g/dL, or a reduction in greater than or equal to 4 units of RBC transfusions for 8 consecutive weeks.

    3. Neutrophil response (if ANC<500 at baseline): ANC increase of 100% or an ANC increase ≥ 500.

  * Eltrombopag was discontinued after 16 weeks if no hematologic response was observed. Patients who responded continued therapy in an extension phase of the trial.

  * Forty percent of patients (17 of 43 patients) demonstrated a hematologic response in at least one lineage. One response had a trilineage response and four had a bi lineage response. The median time to initial hematologic response was approximately 12 weeks (range 8-14 weeks).

- Aplastic anemia is a rare, life-threatening condition, characterized by trilineage bone marrow hypoplasia, with low hematopoietic stem and progenitor cells, resulting in low red blood cell, white blood cell, and platelet counts (anemia, neutropenia, and thrombocytopenia). [7]
Aplastic anemia is usually treatable with allogeneic stem cell transplantation (HSCT) or immunosuppression therapy (IST). [7]

- Early spontaneous recovery is infrequent. Treatment should start as soon as the patient is stabilized and the diagnosis confirmed.
- Curative therapy with HSCT is preferred for newly-diagnosed patients less than 40 years of age if they have an appropriate donor.
- For patients over the age of 40, antithymocyte globulin (ATG) with cyclosporine is recommended, with a 50 to 80% response rate. However, response is delayed and response is generally not seen until three to four months after starting IST. Ongoing transfusion support with packed RBCs and platelets may be needed, along with neutropenic support. Cyclosporin maintenance therapy is used to prevent relapse.
- Re-treatment with ATG or another immunosuppressant can be considered after a minimum of four months, along with enrollment in a clinical trial. Use of prednisone is not recommended, as they are ineffective and increase the risk of bacterial and fungal infections.

- For patients with aplastic anemia refractory to ATG therapy and those with relapse, standard therapy is allogeneic stem cell transplantation (HSCT). [7]

- There is no standard therapy for refractory aplastic anemia patients who are unable to undergo a HSCT, due to lack of a suitable donor for HSCT (20 to 40% of patients) or other contraindication to HSCT, such as advanced age. [7]

- Treatment is generally supportive with red cell and platelet transfusions and treatment of infections.
  - Repeat immunosuppression can be used as salvage therapy, but with limited efficacy and significant toxicity.
  - Eltrombopag may be a treatment option for patients with immunosuppression-refractory thrombocytopenia.

- Delayed response to therapy for aplastic anemia is expected, including eltrombopag. [7]
  - Dose titration up to 150 mg per day may be necessary to achieve a platelet count of ≥ 50 x 10⁹/L, but effect may take up to 16 weeks. If no effect is seen in 16 weeks, therapy should be stopped.
  - Eltrombopag doses should be lowered when platelet levels are between 200 x 10⁹/L and 400 x 10⁹/L and stopped when platelets are over 400 x 10⁹/L, for a goal of ≥ 50 x 10⁹/L. Patients who have a complete response should be re-evaluated regularly for the need for ongoing eltrombopag therapy.

Hematopoietic Syndrome of Acute Radiation Syndrome (HS-ARS)

- The evidence for Nplate (romiplostim) for HS-ARS is based on animal studies and previous studies on platelet count in healthy adults. In animal studies, treatment with Nplate (romiplostim) was shown to increase survival compared to supportive therapy alone. [10 18]
- Nplate (romiplostim) may be used after medical or environmental exposure to radiation (e.g. a nuclear explosion, an accident at a nuclear reactor, a radiotherapy accident, or the escape of radioactive waste). [18]
Laboratory measurement

- Platelet counts are measured per microliter (mcL or µL), which is equivalent to a cubic millimeter (mm3). The measurement can also be expressed per liter (x10⁹/L).
- A platelet count of “50” generally refers to a platelet count of 50 x 10⁹/L or “50,000 per microliter.”
- The following are equivalent expressions of 50,000/µL: “50,000/mm³” or “50 x 10⁹/L.”

Safety

- The most common adverse reactions associated with Doptelet (avatrombopag) are pyrexia, abdominal pain, nausea, headache, fatigue, and edema peripheral.
- The most common adverse reaction with Mulpleta (lusutrombopag) is headache.
- The most common adverse reactions associated with Tavalisse (fostamatinib) are diarrhea, hypertension, nausea, respiratory infection, dizziness, increased ALT/AST, rash, abdominal pain, fatigue, chest pain, and neutropenia.
- Nplate (romiplostim) and Promacta (eltrombopag) have a risk of uncommon but serious side effects which need to be weighed against its potential benefit. Due to strict monitoring requirement, safety concerns, and lack of data for self-administration, romiplostim is currently required to be administered by a health professional.

Uncommon but serious side effects include:

* Bone marrow changes: romiplostim increases the risk for reticulin deposition within the bone marrow. Clinical studies have not ruled out the possibility that reticulin and other fiber deposition may result in bone marrow fibrosis with cytopenias.

* Worsening low blood platelet count: discontinuation of romiplostim may result in worsened thrombocytopenia than was present prior to romiplostim therapy.

* High platelet counts and increased risk of blood clots: romiplostim may increase platelet counts to a level that produces thrombotic/thromboembolic complications. Portal vein thrombosis has been reported in patients with chronic liver disease taking romiplostim.

* Worsening hematologic conditions: romiplostim may increase the risk for hematological malignancies, especially in patients with myelodysplastic syndrome.

- Patients with chronic liver disease require lower initial dose or Promacta (eltrombopag) due to increased risk for thromboembolic events (specifically portal vein thrombosis).

Dosing

- In refractory ITP, Doptelet (avatrombopag) is taken in doses up to 40mg once daily to maintain a platelet count above 50x10⁹/L.
- In CLD, Doptelet (avatrombopag) is taken 10 to 13 days prior to a scheduled procedure. The recommended dose is 60 mg orally once daily for five days for patients with a platelet count less than 40 x 10⁹/L, and 40 mg orally once daily for five days for a platelet count 40 to less than 50 x 10⁹/L. The planned procedure is to be 5 to 8 days after the last dose of avatrombopag.
- Mulpleta (lusutrombopag) is started 8 to 14 days prior to a scheduled procedure. The recommended dose is 3 mg orally once daily for 7 days. Patients undergo their procedure 2 to 8 days after the last dose of lusutrombopag.

- In CLD clinical trials with Doptelet (avatrombopag) and Mulpleta (lusutrombopag), platelet counts returned to baseline levels approximately 30 to 35 days after the last dose. [8]

- The recommended dose of Tavalisse (fostamatinib) is 100 mg orally twice daily. After 4 weeks, the dose is increased to 150 mg twice daily, if needed, to achieve appropriate platelet count levels. The safety and effectiveness of higher doses have not been established.

- Initial dose of romiplostim for ITP is 1 mcg/kg once weekly as a subcutaneous injection. The maximum weekly dose is 10 mcg/kg and adjusted based on clinical response (platelet count and bleeding). Initial response to romiplostim is usually seen within 5 to 14 days, with a peak response in 14 to 60 days. [1]

- The dose of romiplostim for HS-ARS is 10 mcg/kg administered subcutaneously one time. It should be administered as soon as possible after suspected or confirmed radiation exposure. [1]

- Eltrombopag may be covered in doses up to 75 mg per day for treatment of ITP, up to 100 mg per day for treatment of thrombocytopenia associated with HCV, and up to 150 mg per day for treatment of severe aplastic anemia, the doses shown to be safe and effective.

  * The initial dose of eltrombopag for most chronic ITP patients (≥ 6 years of age) is 50 mg once daily (25 mg once daily for pediatric patients aged 1 to 5 years). Maximum dose is 75 mg daily and adjusted based on clinical response (platelet count and bleeding).

  * Initial response to eltrombopag for ITP is usually seen within 7 to 28 days, with a peak response in 14 to 90 days. [1]

  * The initial dose of eltrombopag for HCV-associated thrombocytopenia is 25 mg once daily. Maximum dose is 100 mg daily and adjusted based on response of platelet count, to allow initiation of antiviral therapy.

  * The initial dose of eltrombopag for refractory aplastic anemia is 50 mg once daily. For first-line severe aplastic anemia the initial dose is 2.5 mg/kg (in pediatric patients aged 2 to 5 years old), 75 mg (pediatric patients aged 6 to 11 years old), or 150 mg for patients aged 12 years and older with standard immunosuppressive therapy. Maximum dose is 150 mg daily and adjusted based on response of platelet count, to avoid the need for platelet transfusions.

*Investigational Uses*

- Doptelet (avatrombopag) is also being studied in chemotherapy-induced thrombocytopenia; however, phase 3 trials are ongoing. There is insufficient evidence supporting safety or efficacy of avatrombopag in this setting. [21]

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- Although Tavalisse (fostamatinib) is being studied for the treatment of various cancers such as lymphomas, colon cancer, non-small cell lung cancer, and renal cell carcinoma, data is limited to phase 2 trials. There is currently insufficient evidence supporting its safety or efficacy in these settings.

- There is insufficient evidence to establish the safety and efficacy of Tavalisse (fostamatinib) for the treatment of rheumatoid arthritis. While preliminary evidence from phase II trials showed promise, larger phase 3 trials did not support the evidence for safety or efficacy of fostamatinib in rheumatoid arthritis.

- Although romiplostim and eltrombopag have been studied in a variety of other conditions, including but not limited to the conditions listed below, there is insufficient evidence to support its use in those settings (limited to case reports, retrospective reviews, and Phase 2 trials). Larger, well-designed trials are needed to confirm preliminary results.

  * Acute thrombocytopenia.
  * Low platelet counts secondary to other conditions or diseases, including, but not limited to, cancer, HIV, hepatitis, and aplastic anemia.\(^{[3,5]}\)
  * Thrombocytopenia secondary to myelodysplastic syndrome (MDS).
  * Drug-induced thrombocytopenia [e.g., chemotherapy, heparin (HIT)].\(^{[22]}\)
  * Thrombocytopenia secondary to disseminated intravascular coagulation, hemangiomas, or platelet loss (massive bleeding).
  * Thrombotic thrombocytopenic purpura/hemolytic-uremic syndrome (TTP/HUS).

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### Appendix A: Child-Pugh Classification of Severity of Liver Disease

<table>
<thead>
<tr>
<th>Child-Pugh Classification</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: well-compensated disease</td>
<td>5 to 6</td>
</tr>
<tr>
<td>B: significant functional compromise</td>
<td>7 to 9</td>
</tr>
<tr>
<td>C: decompensated disease</td>
<td>10 to 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Points Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>Ascites</td>
</tr>
<tr>
<td>Absent</td>
</tr>
<tr>
<td>Slight</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Bilirubin (mg/dL)</td>
</tr>
<tr>
<td>&lt; 2</td>
</tr>
<tr>
<td>2 to 3</td>
</tr>
<tr>
<td>&gt; 3</td>
</tr>
<tr>
<td>Albumin (g/dL)</td>
</tr>
<tr>
<td>&gt; 3.5</td>
</tr>
<tr>
<td>2.8 to 3.5</td>
</tr>
<tr>
<td>&lt; 2.8</td>
</tr>
<tr>
<td>Prothrombin Time</td>
</tr>
<tr>
<td>Seconds over control</td>
</tr>
<tr>
<td>1 to 3</td>
</tr>
<tr>
<td>4 to 6</td>
</tr>
<tr>
<td>&gt; 6</td>
</tr>
<tr>
<td>INR</td>
</tr>
<tr>
<td>&lt; 1.7</td>
</tr>
<tr>
<td>1.8 to 2.3</td>
</tr>
<tr>
<td>&gt; 2.3</td>
</tr>
<tr>
<td>Encephalopathy</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>Grade 1 to 2</td>
</tr>
<tr>
<td>Grade 3 to 4</td>
</tr>
</tbody>
</table>

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These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

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### Appendix B: American Society of Hematology – Criteria for the Diagnosis of Chronic Immune Thrombocytopenic Purpura: Diagnosis of Exclusion [3]

- History compatible with the diagnosis of chronic ITP
- Normal physical examination findings except for signs of thrombocytopenia (petechiae, purpura, or mucosal bleeding); no adenopathy or splenomegaly
- Complete blood count showing isolated thrombocytopenia with large platelets but no anemia unless bleeding or immune hemolysis is present
- Bone marrow examination showing normal or increased numbers of megakaryocytes (not required for diagnosis unless unusual manifestation or age >60 yr.)
- No clinical or laboratory evidence for other causes of thrombocytopenia

### Appendix C: Immunosuppression Therapy for Aplastic Anemia [4]

- Antithymocyte globulin (horse or rabbit) (ATG) with cyclosporine
- Anadrol (oxymetholone)
- Campath (alemtuzumab)

### Cross References

Immune Globulin Replacement Therapy, Medication Policy Manual, Policy No. dru020

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J2796</td>
<td>Injection, romiplostim (Nplate), 10 micrograms</td>
</tr>
</tbody>
</table>

### References


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### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/17/2022</td>
<td>Revised reauthorization criteria for ITP from 6 months to 12 months after initial 12-week reauthorization.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Added coverage criteria for hematopoietic syndrome of acute radiation syndrome (HS-ARS), a newly FDA approved indication.</td>
</tr>
</tbody>
</table>
| 7/22/2020     | • New policy (effective 10/1/2020). Replaces individual drug coverage policies for medications for thrombocytopenia (dru161, dru180, dru560, dru567).  
• From the individual drug coverage policies:  
  ▪ Step therapy requirements for chronic ITP were revised based on updated guidelines. Step therapy no longer requires splenectomy, IVIG, or rituximab.  
  ▪ Revised quantity limits to align with the maximum dosage for each product.  
  ▪ Updated investigational uses  
  ▪ No change to intent of coverage for other indications (CLD pre-procedure, HCV-interferon-related, and aplastic anemia).  
  ▪ Revised quantity limits based on current labeling.  
  ▪ Added Continuation of Therapy criteria. |

*Drugs names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru649

Topic: Gaucher Disease Treatments:

- Cerdelga (eliglustat)
- Cerezyme (imiglucerase)
- Elelyso (taliglucerase alfa)
- miglustat (generic, Zavesca)
- VPRIV (velaglucerase alfa)

Date of Origin: October 1, 2020

Committee Approval Date: June 17, 2022

Effective Date: September 1, 2022

Next Review Date: June 2023

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Gaucher disease is an inherited disorder caused by deficiency of -beta-glucocerebrosidase. Over time, this deficiency causes a buildup of toxic substances in cells which impact the skeleton, bone marrow, spleen, liver, and less commonly the lungs. Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa) are products that replace the deficient enzyme. Two oral medications, Zavesca (miglustat) and Cerdelga (eliglustat), may also be used in the treatment of Gaucher disease. They act as substrate reduction therapy to reduces the synthesis of GL-1, which accumulates as the result of deficiency of the enzyme glucocerebrosidase.
Policy/Criteria

Most contracts require pre-authorization approval of Gaucher disease treatments.

I. Continuation of therapy (COT): Treatments for Gaucher disease may be considered medically necessary for COT when criteria A, B, or C, AND D AND E below are met:

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. For provider-administered medications only: Site of care administration requirements are met. [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND

E. “Administration, Quantity Limitations, and Authorization Period” below applies, as well as “Investigational Uses” for combination therapy

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.
II. **New Starts (treatment-naïve patients):** Gaucher disease treatments may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A or B below are met:

A. **A diagnosis of type 1 Gaucher disease** when criteria 1 through 5 below are met:
   1. The diagnosis is confirmed by one of the following:
      a. Biochemical assay of glucocerebrosidase activity in white blood cells or skin fibroblasts is less than or equal to 30% of normal activity. (Note: laboratory normals may vary).
      OR
      b. Genotyping revealing two pathogenic mutations of the glucocerebrosidase gene.

   AND
   2. Clinically significant symptoms of the disease are present, such as malnutrition, growth retardation, impaired psychomotor development, anemia, thrombocytopenia, bone disease, hepatomegaly, or splenomegaly.

   AND
   3. **Miglustat (generic, Zavesca) only:** Enzyme replacement therapy (ERT) is not a therapeutic option (e.g., due to allergy, hypersensitivity, or poor venous access).

   AND
   4. **Cerdelga (eliglustat) Only:** There is documentation that the member’s CYP2D6 metabolizer status (*See Appendix 1*) is one of the following:
      a. CYP2D6 extensive metabolizer (EM)
      b. CYP2D6 intermediate metabolizer (IM)
      c. CYP2D6 poor metabolizer (PM)

   AND
   5. **Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa) Only:** Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

OR

B. **Miglustat (generic, Zavesca) only:** A diagnosis of Niemann-Pick Disease type C.

III. **Administration, Quantity Limitations, and Authorization Period**

A. Regence Pharmacy Services considers Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa) coverable only under the medical benefit (as provider-administered medications).

B. Regence Pharmacy Services considers miglustat (generic, Zavesca) and Cerdelga (eliglustat) coverable only under the pharmacy benefit (as self-administered medications).

C. When pre-authorization is approved, treatments for Gaucher Disease will be authorized in the following quantities:
<table>
<thead>
<tr>
<th>Product</th>
<th>Quantity Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), Elelyso (taliglucerase alfa)</td>
<td>• Up to 30 units/kg every 2 weeks (or other equivalent dose).&lt;br&gt;• Doses up to 60 units/kg every 2 weeks may be approved when the patient meets high risk dosing guidelines in Appendix 1 for adults or Appendix 2 for children.</td>
</tr>
<tr>
<td>Cerdelga (eliglustat)</td>
<td><strong>Extensive metabolizers</strong> or <strong>intermediate metabolizers</strong>: Up to 60 capsules per 30 days. <strong>Poor metabolizers</strong>: Up to 30 capsules per 30 days.</td>
</tr>
<tr>
<td>Miglustat (generic, Zavesca)</td>
<td>Up to 90 capsules per 30 days.</td>
</tr>
</tbody>
</table>

**D. Continued Authorization:**

1. Authorization shall be reviewed at least annually. Current up to date clinical documentation (including, but not limited to recent chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is still providing clinical benefit, such as disease stability or improvement. This may include, but is not limited to, hematologic indicis, reduction in spleen or liver volume, MRI of spine/femurs, normalized growth, reduced dependency on oxygen, quality of life, and/or plain films of skeleton.

2. **[For Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa)]:** Doses up to 60 units/kg every 2 weeks may be approved when the physician indicates by chart notes that the patient has not responded to lower doses over a period of 6 months.

**PLEASE NOTE:** Clinical documentation of response to initial dosing, documentation of the need for dose escalation, as well as subsequent visits for response to dose escalation, should be submitted for review.

**IV.** Treatments for Gaucher disease are considered investigational when used in combination with each other.

**V.** Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa) are considered investigational when used for all other conditions.

**VI.** Cerdelga (eliglustat) is considered investigational when used for all other conditions including, but not limited to:

**A.** Type 1 Gaucher disease with CYP2D6 ultra-rapid metabolizer status or where CYP2D6 metabolizer status cannot be determined.
VII. Miglustat (generic, Zavesca) is considered investigational when used for all other conditions including, but not limited to:

A. Combination use with Cerdelga (eliglustat).
B. Cystic fibrosis.
C. Fabry’s Disease.
D. Juvenile GM2 gangliosidosis.
E. Mucopolysaccharidosis.
F. Tay-Sachs disease.

Position Statement

Summary

- Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa) work by replacing or supplementing the deficient enzyme (i.e., glucocerebrosidase) in order to allow excess material to be degraded.

- Cerdelga (eliglustat) and miglustat (generic, Zavesca) are considered a substrate reduction therapy (SRT) and work by minimizing the amount of GL1 that a cell makes.

- The intent of this policy is to allow coverage of Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), Elelyso (taliglucerase alfa), Cerdelga (eliglustat), or Zavesca (miglustat) for Gaucher disease type 1 in patients with a confirmed diagnosis, symptomatic disease, and other drug-specific criteria as described in the criteria. Zavesca (miglustat) may also be covered in patients Niemann-Pick Disease type C.

- Enzyme replacement therapy (ERT) with Cerezyme (imiglucerase), Elelyso (taliglucerase alfa), or VPRIV (velaglucerase alfa) is considered the preferred treatment option for all patients with type 1 Gaucher disease requiring pharmacologic treatment. [1,2]

- Treatment should be reserved for symptomatic children (including those with malnutrition, growth retardation, impaired psychomotor development, and/or fatigue), and for adults with symptomatic disease (e.g. platelet count < 60,000/mm^3, liver volume > 2.5 times normal size, spleen volume > 15 times normal size, radiological evidence of skeletal disease). [1]

- Treatment goals are elimination or improvement in symptoms, prevention of irreversible complications, and improvement in the overall health and quality of life. [1]

- ERT has not been shown to improve health outcomes in adult patients with Type 1 Gaucher disease without clinical signs or symptoms of the disease. In addition, ERT does not provide benefit in reversing or decreasing neurologic symptoms associated with Type 2 (acute neuronopathic) or Type 3 (chronic neuronopathic) Gaucher disease. [3]

- The diagnosis of Gaucher disease is usually confirmed by identifying reduced glucocerebrosidase activity in peripheral leukocytes. Targeted DNA analysis to detect the most common mutations is an effective method for confirming the diagnosis. [1]

- SRT with Cerdelga (eliglustat) or Zavesca (miglustat) should not be used in neuronopathic (type 2 or type 3) Gaucher disease and is generally only appropriate for mild systemic disease. [4]
The addition of Zavesca (miglustat) to ERT has not been shown to provide a substantial benefit over ERT alone. [5]

CYP enzymes play an important role in the metabolism of Cerdelga (eliglustat) since it is metabolized by the CYP2D6 protein. CYP2D6 genotyping is a simple blood test to determine who is eligible for treatment with Cerdelga (eliglustat) and how often the medication should be given.

Patients who are CYP2D6 ultra-rapid metabolizers may not achieve adequate concentrations of Cerdelga (eliglustat) to achieve therapeutic effect and a specific dosage cannot be recommended for those patients whose CYP2D6 genotype cannot be determined (indeterminate metabolizers).

A starting dose of 30 units/kg of body weight every other week is reasonable in the absence of high-risk disease. The mean ERT dose used for long-term therapy in the United States is approximately 30 units/kg every other week. [1,3,6,7]

Cerezyme (imiglucerase) is approved for doses ranging from 2.5 units/kg three times per week up to 60 units/kg every other week. VPRIV (velaglucerase alfa) and Elelyso (taliglucerase alfa) have been shown to be equivalent to Cerezyme (imiglucerase) on a unit-for-unit basis, and patients switching from Cerezyme (imiglucerase) can be maintained on the same dose. [4,5,6,7,8]

Cerdelga (eliglustat) is administered orally in doses of 84 mg once or twice daily depending on CYP2D6 metabolizer status and the presence of medications that inhibit the metabolism of eliglustat.

The addition of Zavesca (miglustat), an oral substrate reduction therapy (SRT) to ERT has not been shown to provide a substantial benefit over ERT alone. [5] However, Zavesca (miglustat) may be an appropriate treatment when ERT is not an option (e.g., allergic hypersensitivity, lack of venous access, patients unwilling to receive intravenous infusions).

There is no evidence evaluating the addition of Cerdelga (eliglustat) to any ERT product. It is unknown if the combination is safe and effective for Gaucher disease.

**Clinical Efficacy**

**Enzyme Replacement Products**

- All ERT products used in the treatment of Gaucher disease have demonstrated improvements in some disease-associated parameters (e.g., hemoglobin level, platelet count, spleen and liver volume). [5]

- In studies of patients with Type 1 Gaucher disease switched from Cerezyme (imiglucerase) to the same dose and frequency of either VPRIV (velaglucerase alfa) or Elelyso (taliglucerase alfa), control of disease parameters such as spleen and liver volume, hemoglobin concentration, and platelet counts were maintained. [5]

- ERT with Cerezyme (imiglucerase) improved quality of life in patients with skeletal manifestations of Gaucher disease as measured by The Short Form-36 Health Survey. [8]
- The U.S. Regional Coordinators of the International Collaborative Gaucher Group (ICGG), a panel of physicians who have extensive experience in the care of Gaucher patients, have made recommendations for therapy and dosing based on risk assessment for irreversible morbid complications (see Appendix 1 and 2). [3,6]

* Initial doses of ERT of 30-60 units/kg of body weight every other week are considered safe and effective in demonstrating improvements in hepatosplenomegaly, anemia, and thrombocytopenia.
* Dose adjustments should be based on the patient’s initial risk and achievement of therapeutic goals based on individual patient characteristics.
* The time required to achieve therapeutic goals varies by organ system, but usually requires at least 12 to 36 months.

- The ICGG U.S. Regional Coordinators recommend that all children with Gaucher disease be treated with ERT due to high risk for irreversible, morbid complications. [6,7]

* Diagnosis of Gaucher disease in the first and second decades of life is indicative of a rapidly progressive course.
* Early intervention is necessary for these children, during the time when the skeleton is immature, to enable them to attain their peak skeletal mass by early adulthood.

**Cerdelga (eliglustat) in Gaucher Disease**

- The evidence of efficacy for Cerdelga (eliglustat) is of low quality and is based on two randomized controlled trials.
- Cerdelga (eliglustat) was evaluated versus placebo in 40 treatment naïve, type 1 patients (defined as no SRT within the past six months and no ERT within the last nine months) for percent change in spleen volume from baseline to nine months. [9]

* At nine months spleen volume had decreased by 27.8% in the Cerdelga (eliglustat) groups versus a 2.3% increase in the placebo group (difference -30.0%; 95% confidence interval: -36.8, -23.2; p-value < 0.0001).
* This trial was appraised as low confidence due primarily to potential confounding and uncertain generalizability of the results as some patients were treated with a dose of Cerdelga (eliglustat) that is not currently FDA-approved.

- A comparative study evaluated Cerdelga (eliglustat) versus Cerezyme (imiglucerase) in 159 type 1 patients currently receiving ERT. [10]

* The primary endpoint assessed was a composite of stability in Hgb level (defined as < 1.5 g/dL decrease), platelet count (defined as < 25% decrease), and liver and spleen volume (defined as < 20% and < 25% increase, respectively).
* At 12 months, 84.8% and 93.6% of patients met the primary endpoint in the Cerdelga (eliglustat) and Cerezyme (imiglucerase) groups, respectively, which met the pre-specified definition for non-inferiority.

**Zavesca (miglustat) in Gaucher Disease**

- Zavesca (miglustat) has only been studied in patients with mild-to-moderate symptomatic Gaucher disease. It has not been evaluated for efficacy in patients with severe disease (such as patients with skeletal manifestations, hemoglobin concentrations less than 9 mg/L, and/or platelet counts less than 50 x 10⁹/L). [1]
Two prospective, open-label, non-comparative trials described the safety and efficacy of Zavesca (miglustat) in patients with mild-to-moderate type 1 Gaucher disease. Over a period of 12 to 24 months, Zavesca (miglustat) therapy resulted in improvement in liver and spleen volume, increases in hemoglobin, and stable or improved platelet counts and bone involvement. [11,12]

**Zavesca (miglustat) in Niemann Pick Disease Type C**

- There is evidence which suggests that Zavesca (miglustat) in doses of 200 mg three times daily improves clinical markers for Niemann-Pick disease type C (NPC) and stabilizes neurological disease progression. Although the small numbers of patients studied and concomitant medications make the results uncertain, patients with NPC have few other treatment options. [13-15]

**Investigational Uses**

- A small study evaluated the use of Zavesca (miglustat) in the management of five patients with juvenile GM2 gangliosidosis. There was no clear benefit observed, but the study was small and did not include a comparator. Larger, well-designed randomized controlled trials are needed to establish the safety and efficacy of Zavesca (miglustat) in this condition. [16]

- One small, randomized, placebo-controlled, study evaluated the use of Zavesca (miglustat) in patients with Fabry’s disease. After 6 months of treatment, miglustat did not significantly reduce the number of globotriaosylceramide inclusions per kidney interstitial capillary compared to placebo.

- One single-center, placebo-controlled study evaluated the use of Zavesca (miglustat) for improvement in Vineland Adaptive Behavior Scales in patients with mucopolysaccharidosis type III. No improvement or stabilization in behavior was seen in the Zavesca (miglustat) group. [17]

- A small study evaluated the use of Zavesca (miglustat) in the management of late-onset Tay-Sachs disease. Though the study had flaws that make the results uncertain, the study authors concluded that Zavesca (miglustat) did not lead to measurable benefits. [18]

**Dosing** [20]

- Dose adjustments for ERT are made on an individual basis and should consider patient-specific factors.

  - Increases in ERT dose may be necessary to achieve therapeutic goals or for relapse following dose reduction. An increased dose may also be indicated if visceromegaly, anemia, thrombocytopenia, and biomarkers fail to improve after six months of therapy. However, an increased dose is unlikely to reverse certain types of pathology (e.g., osteonecrosis and fibrosis of the liver, spleen, or lung).
- The recommended dosage of Zavesca (miglustat) is 100 mg three times daily. The dose should be reduced in patients with tremor, diarrhea, or renal impairment.
- The recommended dosage of Cerdelga (eliglustat) is 84 mg twice daily in CYP2D6 extensive metabolizers and intermediate metabolizers and 84 mg once daily in CYP2D6 poor metabolizers.

* Drugs that inhibit CYP2D6 and CYP3A pathways may significantly increase exposure to Cerdelga (eliglustat) and result in cardiac arrhythmias.
* Co-administration of Cerdelga (eliglustat) with other CYP2D6 and CYP3A inhibitors may require dosage adjustment depending on the CYP2D6 metabolizer status to reduce the risk of potential significant adverse reactions.
* The following table includes dosing recommendations when Cerdelga (eliglustat) is co-administered with other CYP2D6 and CYP3A inhibitors:

<table>
<thead>
<tr>
<th>CYP450 Inhibitors</th>
<th>Ultra-Rapid Metabolizer (URM)</th>
<th>Extensive Metabolizer (EM)</th>
<th>Intermediate metabolizer (IM)</th>
<th>Poor metabolizer (PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong or moderate CYP2D6 inhibitors concomitantly with strong or moderate CYP3A inhibitors</td>
<td>Not indicated</td>
<td>Contraindicated</td>
<td>Contraindicated</td>
<td>N/A</td>
</tr>
<tr>
<td>Strong CYP2D6 inhibitors</td>
<td>Not indicated</td>
<td>84 mg once daily</td>
<td>84 mg once daily</td>
<td>N/A</td>
</tr>
<tr>
<td>Moderate CYP2D6 inhibitors</td>
<td>Not indicated</td>
<td>84 mg once daily</td>
<td>84 mg once daily</td>
<td>N/A</td>
</tr>
<tr>
<td>Strong CYP3A4 inhibitors</td>
<td>Not indicated</td>
<td>84 mg once daily</td>
<td>Contraindicated</td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Moderate CYP3A inhibitors</td>
<td>Not indicated</td>
<td>84 mg once daily</td>
<td>Not recommended</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Weak CYP3A inhibitors</td>
<td>Not indicated</td>
<td>N/A</td>
<td>N/A</td>
<td>Not recommended</td>
</tr>
</tbody>
</table>

Cross References

Site of Care Review, Medication Policy Manual, Policy No. dru408
Appendix 1: Adults with Type 1 Gaucher Disease: Risk Assessment and Dosage Recommendations [6]

<table>
<thead>
<tr>
<th>Initial Dose</th>
<th>Highest Risk: 60 units/kg every 2 weeks</th>
<th>Lowest Risk: 30 units/kg or less every 2 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one or more of the following:</td>
<td>- Normal liver, cardiac, lung, and renal function</td>
<td></td>
</tr>
<tr>
<td>- <strong>Symptomatic skeletal disease:</strong></td>
<td>- Skeletal disease limited to mild osteopenia (low bone density) and Erlenmeyer flask deformity</td>
<td></td>
</tr>
<tr>
<td>* Moderate to severe osteopenia defined as reduced bone mineral density (BMD) of &gt; 1 S.D. below the mean (which predicts a relative fracture risk of 2.5 using the World Health Organization criteria).</td>
<td>- Hemoglobin as follows: <strong>Males:</strong> ≤ 12.5 g/dL and &gt; 11.5 g/dL; <strong>Females:</strong> ≤ 11.5 g/dL and &gt; 10.5 g/dL; or overall &lt; 2.0 g/dL below lower limit of normal for age and sex</td>
<td></td>
</tr>
<tr>
<td>* Chronic bone pain</td>
<td>- Platelet count ≤ 120,000 per mm³ and &gt; 60,000 mm³ on three determinations</td>
<td></td>
</tr>
<tr>
<td>* Bone crises</td>
<td>- Liver volume &lt; 2.5 x normal</td>
<td></td>
</tr>
<tr>
<td>* Avascular necrosis</td>
<td>- Spleen volume &lt; 15 x normal</td>
<td></td>
</tr>
<tr>
<td>* Pathological fractures</td>
<td>- Normal liver, cardiac, lung, and renal function</td>
<td></td>
</tr>
<tr>
<td>* Joint replacement(s)</td>
<td>- Skeletal disease limited to mild osteopenia (low bone density) and Erlenmeyer flask deformity</td>
<td></td>
</tr>
<tr>
<td>- <strong>Cardiopulmonary disease, including pulmonary hypertension</strong></td>
<td>- Hemoglobin as follows: <strong>Males:</strong> ≤ 12.5 g/dL and &gt; 11.5 g/dL; <strong>Females:</strong> ≤ 11.5 g/dL and &gt; 10.5 g/dL; or overall &lt; 2.0 g/dL below lower limit of normal for age and sex</td>
<td></td>
</tr>
<tr>
<td>- <strong>Hematologic symptoms</strong></td>
<td>- Platelet count ≤ 120,000 per mm³ and &gt; 60,000 mm³ on three determinations</td>
<td></td>
</tr>
<tr>
<td>* Platelet count ≤ 60,000 mm³ or documented abnormal bleeding episodes</td>
<td>- Liver volume &lt; 2.5 x normal</td>
<td></td>
</tr>
<tr>
<td>* Symptomatic anemia or hemoglobin ≤ 8.0 g/dL</td>
<td>- Spleen volume &lt; 15 x normal</td>
<td></td>
</tr>
<tr>
<td>* Transfusion dependency</td>
<td>- Normal liver, cardiac, lung, and renal function</td>
<td></td>
</tr>
<tr>
<td>- <strong>Significant liver disease</strong></td>
<td>- Skeletal disease limited to mild osteopenia (low bone density) and Erlenmeyer flask deformity</td>
<td></td>
</tr>
<tr>
<td>* Severe hepatomegaly defined as liver volume ≥ to 2.5 x norm</td>
<td>- Hemoglobin as follows: <strong>Males:</strong> ≤ 12.5 g/dL and &gt; 11.5 g/dL; <strong>Females:</strong> ≤ 11.5 g/dL and &gt; 10.5 g/dL; or overall &lt; 2.0 g/dL below lower limit of normal for age and sex</td>
<td></td>
</tr>
<tr>
<td>* Infarcts</td>
<td>- Platelet count ≤ 120,000 per mm³ and &gt; 60,000 mm³ on three determinations</td>
<td></td>
</tr>
<tr>
<td>* Portal hypertension</td>
<td>- Liver volume &lt; 2.5 x normal</td>
<td></td>
</tr>
<tr>
<td>* Hepatitis</td>
<td>- Spleen volume &lt; 15 x normal</td>
<td></td>
</tr>
<tr>
<td>- <strong>Significant splenic disease</strong></td>
<td>- Normal liver, cardiac, lung, and renal function</td>
<td></td>
</tr>
<tr>
<td>* Severe splenomegaly defined as spleen volume &gt; 15 x normal</td>
<td>- Skeletal disease limited to mild osteopenia (low bone density) and Erlenmeyer flask deformity</td>
<td></td>
</tr>
<tr>
<td>* Infarcts</td>
<td>- Hemoglobin as follows: <strong>Males:</strong> ≤ 12.5 g/dL and &gt; 11.5 g/dL; <strong>Females:</strong> ≤ 11.5 g/dL and &gt; 10.5 g/dL; or overall &lt; 2.0 g/dL below lower limit of normal for age and sex</td>
<td></td>
</tr>
<tr>
<td>* Significant renal disease such as evidence of bilaterally reduced (&lt; 8.5 cm) kidney size by imaging studies</td>
<td>- Platelet count ≤ 120,000 per mm³ and &gt; 60,000 mm³ on three determinations</td>
<td></td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
### Appendix 2: Children (less than 18 years) with Type 1 Gaucher Disease: Risk Assessment and Dosage Recommendations

<table>
<thead>
<tr>
<th>Initial Dose</th>
<th>Highest Risk: 60 units/kg every 2 weeks</th>
<th>Lowest Risk: &lt; 60 units/kg every 2 weeks</th>
</tr>
</thead>
</table>
| Risk Criteria | One or more of the following in addition to physical signs:  
- Symptomatic disease (manifestations of abdominal/bone pain, fatigue, exertional limitations, weakness, cachexia)  
- Growth failure  
- Evidence of skeletal involvement including Erlenmeyer flask deformity  
- Platelet count < 60,000 mm³ and/or documented abnormal bleeding episode(s)  
- Hemoglobin < 2.0 g/dL below lower limit of normal for age and sex  
- Impaired quality of life | Children with relevant physical signs without additional criteria described for highest risk patients. |

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
References


8. Strensiq [Prescribing Information]. Cheshire, CT: Alexion Pharmaceuticals; October 2018


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/17/2022</td>
<td>Updated reauthorization language to include current/recent clinical documentation.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>Updated continuation of therapy (COT) language, as well as criteria for dose escalation, such that it applies to COT. Clarified criteria for Niemann Pick Type C.</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>Added back in quantity limit language to continued authorization section for Cerezyme (imiglucerase), VPRIV (velaglucerase alfa), and Elelyso (taliglucerase alfa). This was mistakenly left out when combining policies. No change to intent of criteria.</td>
</tr>
<tr>
<td>7/22/2020</td>
<td>New combination policy (effective 10/1/2020). Replaces individual drug coverage policies for Gaucher Disease (dru002, dru109, and dru370)</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru652

**Topic:** Monjuvi, tafasitamab-cxix

**Date of Origin:** April 1, 2021

**Committee Approval Date:** January 20, 2021

**Next Review Date:** January 2022

**Effective Date:** April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Tafasitamab (Monjuvi) is a monoclonal antibody that binds to the CD19 antigen on B-lymphocytes and on several B-cell cancers, including diffuse large B-cell lymphoma (DLBCL), which ultimately causes cell death. It is given via intravenous infusion and is indicated for patients with relapsed or refractory DLBCL who are not eligible for an autologous stem cell transplant (SCT). Tafasitamab (Monjuvi) is given in combination with oral lenalidomide (Revlimid).
Policy/Criteria

Most contracts require pre-authorization approval of tafasitamab (Monjuvi) prior to coverage.

I. Continuation of therapy (COT): Tafasitamab (Monjuvi) may be considered medically necessary for COT when criterion A, B, or C below is met.
   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.
   OR
   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.
   OR
   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Tafasitamab (Monjuvi) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through E below are met.
   A. A diagnosis of relapsed and/or refractory diffuse large B-cell lymphoma (DLBCL) not otherwise specified (NOS). [refer to Appendix 1]
   AND
   B. There has been disease progression on or after at least one prior anti-CD20-based regimen (e.g. rituximab).
AND
C. The patient is not a candidate for an autologous stem cell transplant (SCT).
AND
D. Tafasitamab (Monjuvi) will be initiated in combination with lenalidomide (Revlimid).
AND
E. There has been no prior use of tafasitamab (Monjuvi) or lenalidomide (Revlimid).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider tafasitamab (Monjuvi) to be a self-administered medication.
B. When pre-authorization is approved, tafasitamab (Monjuvi) may be authorized in doses up to 12 mg/kg in quantities not to exceed the following number of infusions per 28-day cycle: five infusions in cycle 1, four infusions each in cycles 2 and 3, then two infusions per cycle thereafter, until disease progression.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Tafasitamab (Monjuvi) is considered investigational when used for all other conditions.

Position Statement

Summary

- Tafasitamab (Monjuvi) is an intravenously administered monoclonal antibody directed against the CD19 antigen on B-lymphocytes which is present on some B-cell malignancies, including diffuse large B-cell lymphoma (DLBCL). In binding to these cells, tafasitamab (Monjuvi) ultimately causes cell death.
- Tafasitamab (Monjuvi) is indicated in combination with lenalidomide (Revlimid) for the treatment of relapsed or refractory DLBCL, not otherwise specified (NOS) for patients who are not a candidate for an autologous stem cell transplant (SCT) and whose disease has progressed after at least one prior anti-CD20-based (e.g. rituximab) regimen.
- The intent of this policy is to allow coverage of tafasitamab (Monjuvi) for relapsed and refractory DLBCL NOS after progression of disease on standard front-line therapy with a rituximab-based chemotherapy regimen when patients are not eligible for an autologous stem cell transplant as detailed in the coverage criteria.
- The efficacy of tafasitamab (Monjuvi) in DLBCL is based on a low quality, open-label, single-arm, observational study the evaluated overall response rate (ORR) the primary endpoint. ORR is a surrogate endpoint that has not been shown to reliably predict clinically meaningful benefit such as improved survival or quality of life. Patients in the pivotal trial received concomitant lenalidomide (Revlimid) for up to 12 cycles.
- It is not known how tafasitamab (Monjuvi) compares with any other salvage DLBCL therapy.
- The most commonly reported serious adverse effects (AEs) with tafasitamab (Monjuvi) plus lenalidomide (Revlimid) included neutropenia, thrombocytopenia, anemia, pneumonia, low serum potassium, and pulmonary embolism. Approximately one in four patients stopped either one or both drugs due to an AE.
- The National Comprehensive Cancer Network (NCCN) B-cell lymphoma guideline lists tafasitamab (Monjuvi) plus lenalidomide (Revlimid) among several salvage therapy options for DLBCL NOS.
- Tafasitamab (Monjuvi) is administered intravenously in a dose of 12 mg/kg on a 28-day cycle. It is given at least weekly in the first three cycles, and then every two weeks thereafter, starting with cycle 4. It is given until disease progression. Concomitant lenalidomide (Revlimid) is given daily for a maximum of 12 cycles.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy

The efficacy of tafasitamab (Monjuvi) is based on a low quality, open-label (non-blinded), single-arm (no comparator) trial that evaluated tumor response as a surrogate endpoint in patients with relapsed or refractory DLBCL NOS. [1,2] This was an FDA accelerated approval meaning that clinical benefit has not been confirmed.

- Patients enrolled in the study had a confirmed diagnosis of DBLCL NOS. This included a subset of patients that had transformed indolent lymphoma with a subsequent DLBCL relapse.
- All patients had a disease that had relapsed after, or were refractory to at least one, but no more than three systemic regimes for their DLBCL. At least one prior therapy must have included an anti-CD20-based (e.g. rituximab) chemotherapy regimen.
- Additionally, patients were not candidates for high-dose chemotherapy with a subsequent autologous stem cell transplant (SCT) based on age, other comorbidities, or inability to successfully collect peripheral blood stem cells.
- There was a 55% overall response rate (partial response plus complete remissions). The complete remission rate was 37% based on the FDA analysis of the data set (the manufacturer analysis reported higher rates).
- Neither of these medications has been shown to improve any clinically important outcome in DLBCL when used alone. A well-conducted randomized controlled trial is needed to establish whether the combination of tafasitamab (Monjuvi) and lenalidomide (Revlimid) is superior at improving clinical outcomes relative to other therapies or either agent alone.
Guidelines [3]
- The NCCN B-cell lymphoma guideline lists tafasitamab (Monjuvi) plus lenalidomide (Revlimid) among several category 2A salvage regimens for DLBCL. This recommendation applies to patients who are not candidates for transplant.

Investigational Uses
- There is no published evidence for tafasitamab (Monjuvi) outside of the relapsed or refractory DLBCL treatment setting.
- The clinicaltrials.gov database lists several planned or ongoing studies that will evaluate tafasitamab (Monjuvi) in combination with medications other than lenalidomide (Revlimid); [4] however, there is currently no information that establishes the safety or efficacy of these combinations.

Safety [2,5]
- The most commonly reported treatment-emergent adverse effects (AEs) in the pivotal tafasitamab (Monjuvi) trial included bone marrow suppression (neutropenia, anemia, and thrombocytopenia), pneumonia, hypokalemia, and pulmonary embolism.
- Deaths due to an AE occurred in 4.9% of the study population within 60 days of the last dose of tafasitamab (Monjuvi).
- Discontinuation of study drug (either drug alone, or both) occurred in about one in four patients in the trial and 70% or patients required dose modifications (either drug alone, or both) suggesting tolerability issues with this regimen in a fair number of patients.

Dosing [5]
- Tafasitamab (Monjuvi) is given intravenously at a dose of 12 mg/kg in 28-day cycles on the following schedule:
  * Cycle 1: Days 1, 4, 8, 15, and 22
  * Cycles 2 & 3: Days 1, 8, 15, and 22
  * Cycle 4 and beyond: Days 1 and 15
- Lenalidomide is initiated with tafasitamab (Monjuvi) on the following schedule:
  * 25 mg (one capsule) orally daily on Days 1 through 21 of each 28-day cycle for a maximum of 12 cycles
Appendix 1: DLBCL, not otherwise specified (NOS)

- Defined in the World Health Organization (WHO) classification of mature lymphoid neoplasms
- Diagnosis of exclusion
- ICD10 codes(s): C83.30 to C83.39, depending on site of tumor

Cross References

Chimeric Antigen Receptor (CAR) T-cell Therapies: tisagenlecleucel (Kymriah), axicabtagene ciloleucel (Yesclara), and lisocabtagene maraleucel (liso-cel); Medication Policy Manual, Policy No. dru523

Non-Preferred Products with Available Biosimilars, Medication Policy Manual, Policy No. dru620

Polivy, polatuzumab vedotin, Medication Policy Manual, Policy No. dru600

Revlimid, lenalidomide, Medication Policy Manual, Policy No. dru127

Rituxan Hycela, rituximab / hyaluronidase subcutaneous (SC), Medication Policy Manual, Policy No. dru559

Xpovio, selinexor, Medication Policy Manual, Policy No. dru607

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J9999</td>
<td>Not otherwise classified, antineoplastic drugs (Physician’s office)</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3490</td>
<td>Unclassified drugs (Hospital outpatient)</td>
</tr>
<tr>
<td>HCPCS</td>
<td>C9399</td>
<td>Unclassified drugs or biologicals (Hospital outpatient, Medicare)</td>
</tr>
</tbody>
</table>

References

**Revision History**

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<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>1/20/2021</td>
<td>New policy. Limits coverage of tafasitamab (Monjuvi) to patients with relapsed or refractory DLBCL NOS when used in combination with lenalidomide in patients who are not candidates for a stem cell transplant (SCT) and whose disease has progressed after at least one prior anti-CD20-based regimen. Patients who have had progression of disease on tafasitamab (Monjuvi) and/or lenalidomide (Revlimid) are not eligible for coverage as retreatment has not been shown to be effective.</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual  
Policy No: dru657

Topic: Uplizna, inebilizumab  
Date of Origin: January 1, 2021

Committee Approval Date: July 16, 2021  
Next Review Date: July 2022

Effective Date: October 1, 2021

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Inebilizumab (Uplizna) is an intravenous medication (monoclonal antibody) for neuromyelitis optica spectrum disorder (NMOSD), a rare inflammatory condition.
Policy/Criteria

Most contracts require pre-authorization approval of inebilizumab (Uplizna) prior to coverage.

I. Continuation of therapy (COT): Inebilizumab (Uplizna) may be considered medically necessary for COT when criteria A, B, or C, AND D AND E below are met:

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND

E. “Administration, Quantity Limitations, and Authorization Period” below applies, as well as “Investigational Uses” for combination therapy

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Inebilizumab (Uplizna) may be considered medically necessary when clinical documentation (including, but not limited to chart notes), that criteria A through D below are met.

A. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND
B. A diagnosis of neuromyelitis optica spectrum disorder (NMOSD) has been established by or in consultation with a neurologist.

AND

C. Documentation of a positive serologic test for aquaporin-4 immunoglobulin (AQP4-IgG) antibodies.

AND

D. Rituximab has been ineffective as documented by symptom relapse after completion of induction (at least one month after the first dose of rituximab) or not tolerated, unless there is a documented medical contraindication to use.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider inebilizumab (Uplizna) to be a self-administered medication.

B. When pre-authorization is approved, inebilizumab (Uplizna) will be authorized in quantities as follows:

<table>
<thead>
<tr>
<th>Drug</th>
<th>Inebilizumab (Uplizna)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Authorization</td>
<td>A maximum of 9 vials (100 mg/vial) in a 48-week period based on 300 mg on week 0, 2, then 300 mg every 24 weeks (starting 24 weeks from the first infusion).</td>
</tr>
<tr>
<td>Continued Authorization</td>
<td>A maximum of 6 vials (100 mg/vial) per 48 weeks, based on a max dose of 300 mg every 24 weeks.</td>
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</table>

C. Authorization shall be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit including disease stability or improvement, relative to baseline symptoms. Specifically, there must be a reduction of clinical relapse OR provider attestation has been received that the patient is continuing to have clinical benefit (stability or improvement) and clinical therapy is medically necessary.

IV. Investigational Uses:

A. Inebilizumab (Uplizna) is considered investigational when used for all other conditions.

B. The use of inebilizumab (Uplizna) in combination with other targeted therapies for NMOSD, including, but not limited to, anti-CD20 therapy [rituximab product], anti-CD19 therapy [satralizumab (Enspryng)], anti-IL6 therapy [tocilizumab (Actemra)], or complement inhibitors [such as eculizumab (Soliris)].
Position Statement

Summary

- Inebilizumab (Uplizna) is a monoclonal antibody that binds to CD19.[1]

- The intent of the policy is to allow for coverage of inebilizumab (Uplizna) for the specific diagnosis for which it has been studied (as outlined in the coverage criteria), when managed by a specialist, encourage the use of lower cost therapy (when appropriate), and limit coverage to doses studied and shown to be safe and effective in clinical trials.

- Inebilizumab (Uplizna) has been studied for use in neuromyelitis optica spectrum disorder (NMOSD), also known as Devic disease or neuromyelitis optica (NMO). It is a chronic demyelinating disease of the central nervous system dominated by inflammation of the optic nerve and spinal cord and may often be misdiagnosed as multiple sclerosis (MS).[2-5]

- Stepwise deterioration due to disease relapse/attack causes an accumulation of disability. Hallmark features of NMOSD include acute nerve inflammation that leads to severe visual loss, limb weakness, sensory loss, pain, paralysis, bladder dysfunction, and intractable nausea/vomiting and hiccups.

- Patients with NMOSD are treated for acute episodes/relapse with steroids. Plasma exchange (plasmapheresis, PLEX) is used acutely for incomplete response to steroids.

- Immunosuppressive therapy (IST; corticosteroids, azathioprine, mycophenolate mofetil, or rituximab) is therapy to reduce the frequency of relapse (maintenance therapy).

- Not all patients with NMOSD test positive for AQP4-IgG. Only a small percentage of patients in the clinical trial of inebilizumab (Uplizna) in NMOSD were AQP4-IgG negative (n=17, 7%). Due to the small sample size, the efficacy and safety in AQP4 seronegative patients is unknown.

- There is limited clinical experience for the use of inebilizumab (Uplizna) and the long-term safety and efficacy is unknown.

- Inebilizumab (Uplizna) has not been directly compared to any other IST for NMOSD. However, use of rituximab for NMOSD is supported by clinical evidence for reducing relapse rate [including a single randomized controlled trial (RCT)[6]], is recommended by guidelines, and has years of experience in clinical practice. [2,5,7-9] Therefore, inebilizumab (Uplizna) is coverable only when rituximab is ineffective or not a treatment option.

- The evidence for inebilizumab (Uplizna) in NMOSD is limited to a single phase 3 trial. Although inebilizumab (Uplizna) reduced the frequency of NMOSD relapse compared to placebo, its effect on quality of life (QoL) and disability are unknown.

- The safety and efficacy of inebilizumab (Uplizna) in combination with other targeted therapies for NMOSD, including rituximab, eculizumab (Soliris), and satralizumab (Enspryng) have not been established. Inebilizumab (Uplizna) may be covered for up to 300 mg on days 0 and 14 (initial) and every six months thereafter starting 6 months from the first infusion (maintenance), the dose studied in clinical trials. The safety and effectiveness of higher doses have not been established.
- The safety and effectiveness of inebilizumab (Uplizna) in conditions other than NMOSD have not been established.

Clinical Efficacy\(^{10-12}\)

- The evidence for inebilizumab (Uplizna) in NMOSD is limited to one phase 2/3, time-to-event trial that showed that inebilizumab (Uplizna) reduced the frequency of first adjudicated relapsed compared to placebo (N-MOmentum)\(^{13}\).
  * Inebilizumab (Uplizna) monotherapy was compared to placebo.
  * Patients enrolled in the trial had at least one relapse within the year prior to screening or at least two relapses within the two years prior to screening and had a median Expanded Disability Status Scale (EDSS) of 4.
  * The primary endpoint of first adjudicated relapse occurred in 11% in the inebilizumab (Uplizna) arm versus 42% of the placebo arm, HR 0.23 [95% CI 0.12 to 0.42].
  * The sample size of patients who were aquaporin 4 (AQP4) seronegative (n=17) was too small to determine efficacy in AQP4 seronegative patients. In AQP4 seronegative patients, three of the 13 patients who received inebilizumab (Uplizna) had a relapse versus none of the four in the placebo arm.

- Guidelines recommend treatment of acute episodes/relapse and use of maintenance immunosuppressive therapy (IST), to reduce the frequency of relapse.\(^{2,5,8,9,14}\)
  * Treatment of Relapse: Patients are usually treated with 1 g of intravenous (IV) methylprednisolone (IVMP) for 3–5 days. Relapses that do not respond to IV steroids may benefit from five to seven plasma exchange (PLEX) procedures over a 2-week period. Oral prednisone (1 mg/kg) for 1–6 months can be initiated after IVMP or PLEX to ensure a prolonged effect on inflammation until steroid sparing immunosuppressants take effect.
  * Maintenance Therapy: A variety of immunosuppressive therapy (IST) are regarded by many clinicians as first-line therapy based on primarily observational or single-arm data. The most widely prescribed treatments include: corticosteroids, azathioprine, mycophenolate mofetil, and rituximab. The use of azathioprine and mycophenolate mofetil has fallen out of favor due to lack of efficacy and side effect profile. However, if given, they are often prescribed with low doses of corticosteroids. Rituximab has evidence for reduction of relapse rates and disability in neuromyelitis optica, based on one RCT (n=68)\(^{6}\) and dozens of case series, including in patients who fail oral immunosuppressive treatments.\(^{7,9,15-19}\) Paradoxical relapses may occur shortly after initiation of rituximab therapy so it is important to allow enough time for the rituximab to become effective. Complete suppression of CD20+B lymphocytes takes one month.\(^{17}\)
**Investigational Uses**

- There are no published clinical trials evaluating the safety or efficacy of inebilizumab (Uplizna) for the treatment of other conditions not covered in this policy, or in combination with other targeted therapies for NMOSD, including, but not limited to, anti-CD20 therapy [rituximab product], anti-CD19 therapy [satralizumab (Enspryng)], anti-IL6 therapy [tocilizumab (Actemra)], or complement inhibitors [eculizumab (Soliris)].

**Safety**

- There is no reliable evidence to conclude that inebilizumab (Uplizna) is safer than alternatives used in NMOSD, including rituximab products.

- The recommended dose of inebilizumab (Uplizna) is 3000 mg at day 0 and 14, followed by 300 mg every 6 months as maintenance. The safety and effectiveness of higher doses have not been established.

- Inebilizumab (Uplizna) is not considered a self-injectable medication for safety reasons; therefore, it is only coverable under the medical benefit. Medical observation for hypersensitivity reactions is necessary following inebilizumab (Uplizna) administration.

### Cross References

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<tr>
<th>Complement Inhibitors, Medication Policy Manual, Policy No. dru385</th>
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<tr>
<td>Non-Preferred Products with Available Biosimilars/ Reference Products, Medication Policy Manual, Policy No. dru620</td>
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<tr>
<td>Satralizumab (Enspryng, satralizumab, Medication Policy Manual, Policy No. dru656</td>
</tr>
<tr>
<td>Site of Care Review, Medication Policy Manual, Policy No. dru408</td>
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### Codes

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<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J1823</td>
<td>Injection, inebilizumab-cdon (Uplizna), 1 mg</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G36.0</td>
<td>Neuromyelitis Optica [Devic]</td>
</tr>
</tbody>
</table>
References


5. Glisson CC. Neuromyelitis optica spectrum disorders (literature review current through April 2021). In: UptoDate, Gonzalez-Scarano F, Dashe JF (Eds), UptoDate, Waltham, MA.


Revision History

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<th>Revision Summary</th>
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<tbody>
<tr>
<td>7/16/2021</td>
<td>Continuation of therapy (COT) updated. Clarified use in combination with other targeted therapies is “Investigational.”</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>New policy (effective 1/1/2021). Limits coverage to patients with NMOSD that is AQP4 seropositive (the setting in which it was studied and has a labeled indication) if rituximab products, which are standard of care with years of experience in clinical practice, are ineffective not tolerated or contraindicated.</td>
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</table>

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru658

Topic: Zepzelca, lurbinectedin

Date of Origin: November 15, 2020

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: April 1, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Lurbinectedin (Zepzelca) is an intravenous (IV) medication use for the treatment of metastatic small cell lung cancer (SCLC). It is used for patients with disease despite use of previous therapies.
Policy/Criteria

Most contracts require pre-authorization approval of lurbinectedin (Zepzelca) prior to coverage.

I. Continuation of therapy (COT): Lurbinectedin (Zepzelca) may be considered medically necessary for COT when criterion A, B, or C below is met:

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim. AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 below must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Lurbinectedin (Zepzelca) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that criteria A through C below are met.

   A. A diagnosis of **metastatic small cell lung cancer (SCLC)**.

   AND

   B. There has been disease progression on or after a cisplatin- or carboplatin-containing regimen.

   AND

   C. Lurbinectedin (Zepzelca) will be used as a monotherapy.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider lurbinectedin (Zepzelca) to be a self-administered medication.

B. When pre-authorization is approved, lurbinectedin (Zepzelca) may be authorized in quantities of up to 3.2 mg/m² IV every 21 days until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement.

IV. Lurbinectedin (Zepzelca) is considered investigational when used for all other conditions.

Position Statement

Summary

- The intent of this policy is to allow coverage of lurbinectedin (Zepzelca) in the clinical setting described above (in the coverage criteria), where it has been evaluated for efficacy, up to the dose shown to be safe in clinical trials.

- Lurbinectedin (Zepzelca) is indicated for metastatic small cell lung cancer as a single agent after progression of disease on or after platinum-based chemotherapy.

- Efficacy was based on a small, single-arm trial (poor quality evidence) that evaluated tumor response as an endpoint. Lurbinectedin (Zepzelca) was administered as monotherapy.

* Approval in this setting is conditional (FDA Accelerated approval). Additional studies are needed to establish clinical benefit Indications.[1]

- The NCCN small cell lung cancer guideline lists lurbinectedin (Zepzelca) as a category 2A recommendation for subsequent treatment of metastatic SCLC along with many other chemotherapy regimens.[2]

- Lurbinectedin (Zepzelca) may be covered for up to 3.2 mg/m² every 21 days, the dose studied in clinical trials. The safety and effectiveness of higher doses have not been established.[1]

- The safety and effectiveness of lurbinectedin (Zepzelca) in conditions other than metastatic small cell lung cancer have not been established. Lurbinectedin (Zepzelca) is currently being evaluated for multiple other solid tumors, however the evidence is preliminary.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.
Clinical Efficacy

- The evidence for lurbinectedin (Zepzelca) is based on a single, open-label, single-arm trial in patients with SCLC who had disease progression on or after platinum-based chemotherapy.
- Lurbinectedin (Zepzelca) was given as monotherapy until disease progression or unacceptable toxicity.
- Tumor response was evaluated as the primary endpoint; however, tumor response in not a validated surrogate for any clinically relevant endpoint in SCLC.

Investigational Uses

- Although lurbinectedin (Zepzelca) is being studied for the treatment of other types of solid tumors, there is currently no published evidence supporting its safety or efficacy in these [4]

Cross References

None

References


Revision History

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<tr>
<td>1/20/2021</td>
<td>Updated continuation of therapy (COT) language. No changes to coverage criteria.</td>
</tr>
<tr>
<td>10/28/2020</td>
<td>New policy (effective 11/15/2020). Limits coverage to patients with metastatic small cell lung cancer with disease progression on or after platinum-based chemotherapy (disease), the setting in which it was studied and has a labeled indication.</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru661

Topic: Amondys 45, casimersen

Date of Origin: February 15, 2021

Committee Approval Date: January 20, 2021

Next Review Date: January 2022

Effective Date: February 15, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Casimersen (Amondys) is an intravenous medication that may be used for Duchenne muscular dystrophy (DMD) when patients have a specific gene mutation. A clinical benefit, such as improved ambulation, of casimersen (Amondys 45) has not been established.
Policy/Criteria

Most contracts require pre-authorization approval of casimersen (Amondys 45) prior to coverage.

I. Continuation of therapy (COT): Casimersen (Amondys 45) is considered investigational for all conditions, per the full policy criteria below.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Casimersen (Amondys 45) is considered investigational for all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 45 skipping (Table 1).

Position Statement

Summary

- Casimersen (Amondys 45) is an intravenous therapy under FDA review for the treatment of Duchenne muscular dystrophy (DMD) when there is a confirmed mutation of the DMD gene that is amenable to exon 45 skipping. It is under evaluation through the FDA Accelerated Approval Program based on an increase in dystrophin in skeletal muscles observed in some patients during a phase III trial.

- A clinical benefit (e.g. prolongation of independent ambulation, improved quality of life, or prevention of disease progression and disability) of casimersen (Amondys 45) has not been established.

  * In one ongoing trial, casimersen (Amondys 45) was shown to increase dystrophin levels. However, it has not been proven that an increase in dystrophin will translate to improved clinical outcomes, such as improved motor function.

- The U.S. Centers for Disease Control and Prevention (CDC) has developed general management guidelines for DMD. The CDC recommends corticosteroids and supportive care to slow disease progression. These guidelines were published prior to the submission of casimersen (Amondys 45) to the FDA, thus the use of casimersen (Amondys 45) for DMD has not yet been addressed. [1-3]

Clinical Efficacy [4]

- Evidence regarding the effect of casimersen on dystrophin levels is inconclusive. Data is limited to the small, unpublished, two-part, double-blind, placebo-controlled phase III ESSENCE trial, which is ongoing. Additional trial data is needed to establish the safety and efficacy of casimersen in Duchenne muscular dystrophy (DMD).

- The primary endpoint of the ESSENCE trial is the change from baseline in the total distance walked during the 6-minute walk test (6MWT) at week 96. Change in dystrophin protein levels, change in forced vital capacity percent (FVC%), and muscular
function tests (such as the ability to rise independently, time to loss of ambulation, and the North Star Ambulatory Assessment (NSAA), at week 96, were key secondary endpoints.

- In the ESSENCE trial, 43 patients were initially randomized to receive either placebo (n=17) or casimersen 30 mg/kg (n=27) via intravenous route weekly for 96 weeks. However, available data is limited to week 48. At week 48, mean dystrophin levels increased to 1.736% of normal in the casimersen 30 mg/kg group. In the casimersen treated group, the baseline dystrophin level was 0.925% of normal, therefore the absolute change in dystrophin was 0.81%. As previously mentioned, the ESSENCE trial is ongoing, and the results of all other endpoints, including the primary endpoint, have not been reported.

* Dystrophin production is a surrogate biomarker of disease improvement with an unknown correlation to health outcomes.

* An absolute increase in dystrophin levels has not been correlated to improved ambulation or muscle function and a minimal clinically important difference in dystrophin levels has not yet been established. Experts have proposed that dystrophin levels greater than or equal to 10% of normal may be clinically meaningful; however, validation is needed.

- Lack of available trial data makes it impossible to demonstrate any meaningful conclusions regarding endpoints with functional outcomes, including 6MWT and pulmonary function resulting from casimersen treatment. Long-term comparative evidence is needed to further clarify the role of casimersen.

- Casimersen has not yet been shown to improve any clinical outcomes such as quality of life, prolongation of independent ambulation, or prevention of disease progression and disability.

**Safety**[^4]

- Limited safety data is available, however, the most common adverse reactions reported with casimersen during phase I/II trials included procedural pain and nasopharyngitis. Safety data for the phase III trial has not been published.

<table>
<thead>
<tr>
<th>Table 1: Mutations Amenable to Exon 45 skipping</th>
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<td>46-51</td>
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[^4]: These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.
Cross References

| Exondys 51, eteplirsen, Medication Policy Manual, Policy No. dru480 |
| Vyondys 53, golodirsen, Medication Policy Manual, Policy No. dru606 |
| Viltepso, viltolarsen, Medication Policy Manual, Policy No. dru640 |

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<td>G71.0</td>
<td>Muscular dystrophy</td>
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<tbody>
<tr>
<td>1/20/2021</td>
<td>New policy. Effective 2/15/2021. Use of casimersen is considered investigational in the treatment of all conditions, including Duchenne muscular dystrophy (DMD) that is amenable to exon 45 skipping. The available clinical trial data was insufficient to demonstrate safety or efficacy of casimersen in the treatment of DMD.</td>
</tr>
</tbody>
</table>

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IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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Description

Margenza (margetuximab-cmkb) is an intravenously administered monoclonal antibody that blocks the human epidermal growth factor 2 (HER2) receptor. It is used in the treatment of HER2-positive breast cancer. It is similar to Herceptin (trastuzumab).
Policy/Criteria

I. Most contracts require pre-authorization approval of Margenza (margetuximab-cmkb) prior to coverage.
   A. New starts (treatment-naïve patients):
      Margenza (margetuximab-cmkb) is considered not medically necessary when used in the treatment of metastatic HER2-positive breast cancer.
   OR
   B. Continuation of therapy (COT):
      Margenza (margetuximab-cmkb) may be considered medically necessary for COT when there is clinical documentation (including, but not limited to chart notes) confirming that criteria 1 and 2 below are met.
      1. The patient is established on this therapy AND one of the following situations applies (criterion a or b below):
         a. Prior to current health plan membership AND the medication was covered by another health plan.
         OR
         b. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission AND there is documented clinical benefit.
      AND
      2. Documentation of clinical benefit is provided.

      Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. Administration, Quantity Limitations, and Authorization Period
   A. Regence Pharmacy Services considers Margenza (margetuximab-cmkb) coverable only under the medical benefit (as a provider-administered medication).
   B. Although the use of Margenza (margetuximab-cmkb) is considered “not medically necessary,” if pre-authorization is approved, Margenza (margetuximab-cmkb) will be authorized in doses up to 15 mg/kg every three weeks until disease progression.
   C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

III. Margenza (margetuximab-cmkb) is considered investigational when used for all other conditions, including but not limited to:
   A. Use in combination with other HER2-directed medications (see Appendix 1).
   B. HER2-positive gastric cancer.
Position Statement

Summary

- Similar to trastuzumab (Herceptin, biosimilars), Margenza (margetuximab-cmkb) is an intravenously administered monoclonal antibody that slows cancer growth by blocking the human epidermal growth factor receptor 2 protein (HER2).

- Margenza (margetuximab-cmkb) is approved for use in adults with metastatic HER2-positive breast cancer (BC) who have had two or more prior HER2-directed regimens, at least one of which was given in the metastatic disease setting. It is given in combination with chemotherapy.

- This policy considers the use of Margenza (margetuximab-cmkb) in patients with metastatic HER2-positive BC to be ‘not medically necessary’ because it has similar safety and efficacy to currently available products but is more costly. There is no evidence of superior safety or efficacy, to suggest additional health outcome benefit, such as improved overall survival (OS), for the higher cost.

- The efficacy of Margenza (margetuximab-cmkb) is similar to the efficacy of trastuzumab (Herceptin, biosimilars). No difference in any clinically relevant outcome has been shown to date.

- The safety of Margenza (margetuximab-cmkb) is also similar to that of trastuzumab (Herceptin, biosimilars), including the box warning describing the potential for left ventricular dysfunction.

- The NCCN breast cancer guideline lists several HER2-directed regimens among recommended options for use in metastatic HER2-positive BC. Ideal sequencing of regimens in the second- and subsequent-line treatment settings has not been determined.

- Margenza (margetuximab-cmkb) is dosed as 15 mg/kg intravenously every 3 weeks until disease progression.

- Margenza (margetuximab-cmkb) is being evaluated in other HER2-positive tumors (e.g. gastric cancers); however, efficacy in cancers other than metastatic HER2-positive breast cancer has not been established.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly
consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

**Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.**

**Clinical Efficacy**

- The available evidence for Margenza (margetuximab-cmkb) is of fair quality. The primary study compared Margenza (margetuximab-cmkb) plus investigator’s choice of single-agent chemotherapy with trastuzumab plus single-agent chemotherapy in patients with metastatic HER2-positive breast cancer. [1][2]
  
  * All patients in the study had received prior trastuzumab and pertuzumab (Perjeta), and 91% received prior Kadcyla (ado-trastuzumab emtansine).
  
  * Overall, 92% of patients received at least two prior lines of therapy in the metastatic treatment setting.

- There was a 0.9-month improvement in median progression-free survival (PFS) with Margenza (margetuximab-cmkb) relative to trastuzumab. Although this difference was statistically significant, it is not likely clinically relevant. Furthermore, PFS (a surrogate endpoint) has not been shown to accurately predict improvement in clinical outcomes in breast cancer.

- Overall survival (OS) was a coprimary endpoint in this study. An interim analysis of OS (after approximately three-quarters of required events were recorded) did not detect any difference in OS between Margenza (margetuximab-cmkb) and trastuzumab. Though this data is not yet mature, it is unlikely there will ever be a significant difference in OS based on the wide overlap in confidence intervals.

- Margenza (margetuximab-cmkb) is a ‘me-too’ product that works via a similar mechanism as trastuzumab. Hypothetically, it could have an advantage over trastuzumab based on increased binding activity to Fc receptor FCGR3A (CD16A); however, there is currently no clinical data to support any superiority in patients with tumors with CD16A genotypes (FF, FV, VV). An evaluation of FcγR allelic variation on efficacy was exploratory in the pivotal trial; therefore, no superior efficacy conclusions can be made at this time.

**Guidelines**

- The National Comprehensive Cancer Network (NCCN) breast cancer guideline lists several HER2-directed therapies (both category 1 and 2A recommendations) among potential options for use in managing HER2-positive breast cancer. [3]

- Optimal sequencing of HER2-directed therapies in the second- and subsequent-line metastatic breast cancer setting has not been determined.
Investigational Uses

- Margenza (margetuximab-cmkb) has only been studied in combination with single-agent chemotherapy in the pretreated, metastatic breast cancer setting. There is currently no evidence evaluating its use in combination with other HER2-directed therapies. Therefore, this use is considered investigational.

- The clinicaltrials.gov database describes an ongoing trial with Margenza (margetuximab-cmkb) in HER2-positive gastric cancer. Whether there is any clinical benefit in this setting has not been adequately defined. Therefore, this use is considered investigational. [4]

Safety [5]

- The safety and warnings associated with the use of Margenza (margetuximab-cmkb) are similar to those experienced with trastuzumab.

- Similar to trastuzumab, adverse effects (AEs) requiring some sort of an intervention (Grade 3 or 4 AEs) occurred in just over half the patients who received Margenza (margetuximab-cmkb).

Dosing [5]

- Margenza (margetuximab-cmkb) is dosed as 15 mg/kg intravenously every three weeks until disease progression. It is given in combination with single-agent chemotherapy.

- Dosing of Margenza (margetuximab-cmkb) may be interrupted or permanently discontinued for decreases in left ventricular ejection fraction (LVEF). Refer to package labeling for specific parameters.

Appendix 1: HER2-Directed Medications Used in Treating HER2-Positive Breast Cancer a

<table>
<thead>
<tr>
<th>Infused Medications (Medical Benefit)</th>
<th>Oral Medications (Pharmacy Benefit)</th>
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<tbody>
<tr>
<td>Margenza (margetuximab-cmkb)</td>
<td>Tykerb (lapatinib)</td>
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<tr>
<td>Perjeta (pertuzumab)</td>
<td>Nerlynx (neratinib)</td>
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<tr>
<td>Phesgo (pertuzumab-trastuzumab)</td>
<td>Tukysa (tucatinib)</td>
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<tr>
<td>trastuzumab (Herceptin, biosimilars)</td>
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<tr>
<td>Herceptin Hylecta (trastuzumab-hyaluronidase)</td>
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<tr>
<td>Kadcyla (ado-trastuzumab emtansine)</td>
<td></td>
</tr>
<tr>
<td>Enhertu (fam-trastuzumab deruxtecan-nxki)</td>
<td></td>
</tr>
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</table>

a Currently available HER2-directed medications for BC, as of the time of this policy date. This list may be incomplete.
Cross References

Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620

Enhertu, fam-trastuzumab deruxtecan-nxki, Medication Policy Manual, Policy No. dru623

Kadcyla, ado-trastuzumab emtansine, Medication Policy Manual, Policy No. dru298

Nerlynx, neratinib, Medication Policy Manual, Policy No. dru520

Pertuzumab-containing medications, Medication Policy Manual, Policy No. dru281

Tukysa, tucatinib, Medication Policy Manual, Policy No. dru646

Tykerb, lapatinib, Medication Policy Manual, Policy No. dru145

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Revision History

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<td>6/17/2022</td>
<td>No criteria changes with this annual update.</td>
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<td>4/21/2021</td>
<td>New policy (effective 05/15/2021). The policy considers coverage of Margenza (margetuximab-cmkb) as ‘not medically necessary’ because it is similar in safety and efficacy to trastuzumab but is more costly.</td>
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Drug names identified in this policy are the trademarks of their respective owners.
**Medication Policy Manual**

**Policy No:** dru668

**Topic:** Oxlumo, lumasiran

**Date of Origin:** May 15, 2021

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Oxlumo (lumasiran) is a medication used to treat primary hyperoxaluria type 1 (PH1), a rare genetic condition that can lead to kidney disease. It is given by subcutaneous (SC) injection.
Policy/Criteria
Most contracts require pre-authorization approval of Oxlumo (lumasiran) prior to coverage.

I. **Continuation of therapy (COT):** Oxlumo (lumasiran) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Oxlumo (lumasiran) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D are met.

A. A diagnosis of **primary hyperoxaluria type 1** (PH1) has been established by, or in consultation with, a hepatologist, nephrologist, or urologist.

AND

B. The diagnosis of PH1 has been confirmed by genetic testing, with documentation of a mutation to the alanine-glyoxylate aminotransferase (AGT) gene.

AND

C. Confirmation of objective kidney dysfunction [such as a decrease in renal function (reduced glomerular filtration rate, GFR), nephrocalcinosis].

AND

D. Medical management has been ineffective in reducing urinary oxalate levels as defined by a trial of ALL of the following, unless contraindicated:

1. Hydration therapy.

AND

2. Crystallization inhibitors (such as neutral phosphate, potassium citrate-citric acid, and magnesium oxide).
AND
3. Pyridoxine (vitamin B6).

**PLEASE NOTE:** *Ineffective is defined as having a 24-hour urine oxalate excretion ≥0.7 mmol/24 hr/1.73 m² for those over 6 years of age, or urinary oxalate-to-creatinine ratio greater than the upper limit of normal for those less than 6 years of age.*

### III. Administration, Quantity Limitations, and Authorization Period

#### A. Regence Pharmacy Services considers Oxlumo (lumasiran) coverable only under the medical benefit (as a provider-administered medication).

#### B. When pre-authorization is approved, Oxlumo (lumasiran) may be authorized in quantities up to the following:

1. Less than 10 kg: 6 mg/kg SC once monthly for 3 doses, followed by 3 mg/kg SC once monthly thereafter.
2. 10 to less than 20 kg: 6 mg/kg SC once monthly for 3 doses, followed by 6 mg/kg SC every three months thereafter.
3. 20 kg or greater: 3 mg/kg SC once monthly for 3 doses, followed by 3 mg/kg SC every three months thereafter.

#### C. Authorization shall be reviewed every 6 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, as defined by ALL of the following:

1. Decreased urinary oxalate excretion, or a reduction in kidney stone events, from baseline.

**AND**

2. Patient is not on dialysis.

**AND**

3. Patient has not had a liver transplant.

### IV. Oxlumo (lumasiran) is considered not medically necessary for use in patients that are currently on dialysis, or after a liver transplant.

### V. Oxlumo (lumasiran) is considered investigational when used for all other conditions.
Position Statement

Summary

- Oxlumo (lumasiran) is a subcutaneous therapy indicated for the treatment of primary hyperoxaluria type 1 (PH1), a rare genetic condition that leads to oxalate-related renal dysfunction and may include renal failure, systemic oxalosis, and associated sequelae.

- Oxlumo (lumasiran) is a small interfering ribonucleic acid (siRNA) that inhibits the messenger RNA of a specific enzyme [hydroxyacid oxidase 1 (HAO1)], which is involved in the pathway that leads to excessive oxalate production.

- The intent of this policy is to cover Oxlumo (lumasiran) for the indication and dose for which it has been shown to be safe and effective, for genetically confirmed, clinically significant PH1 when medical management has been ineffective in controlling urinary oxalate excretion, as detailed in the coverage criteria.

- Disease background:
  * PH1 is caused by mutations in the alanine-glyoxylate aminotransferase (AGT) gene, which results in the absence or defect in AGT. This leads to a significant increase in oxalate production by the liver.
  * In the early stages of PH1, excess oxalate is excreted by the kidney. However, this leads to calcium oxalate crystal formation, bladder/kidney stones, and nephrocalcinosis. Over time, renal inflammation, fibrosis and, if persistent, end-stage kidney disease (ESKD) occurs.
  * Once a patient develops ESKD, oxalate cannot be excreted, leading to oxalate accumulation and subsequent systemic oxalosis. Resulting complications may include cardiac arrest, poor circulation, bone pain, decreased visual acuity and hypothyroidism, among other manifestations.

- The approval of Oxlumo (lumasiran) was based on two phase 3 trials: ILLUMINATE-A and ILLUMINATE-B, which demonstrated a reduction in urine oxalate excretion. High urinary oxalate levels at diagnosis and upon follow-up, has been strongly correlated with worse kidney outcomes, including long-term renal survival.

- Medical management with the use of hydration therapy, crystallization inhibitors, and pyridoxine can effectively reduce urinary calcium oxalate levels and is considered the standard of care.[1]

- PH1 is a heterogenous disease, with a range of phenotypes, from mildly symptomatic to severe infantile oxalosis and kidney failure. Due to the cost, Oxlumo (lumasiran) is coverable only in patients with PH1 and objective evidence of clinically significant kidney disease.

- Liver transplant is the functional cure for PH1, as it corrects the underlying metabolic defect. Therefore, use of Oxlumo (lumasiran) after liver transplant is considered not medically necessary.

- Oxlumo (lumasiran) has not been studied in patients with PH1 who are on dialysis. Chronic high urinary oxalate levels can lead to ESKD and need for dialysis. A renal transplant is often warranted in patients on dialysis. Oxlumo (lumasiran) reduces production of oxalate, but would not reverse hyperoxaluria-related renal failure. In addition, dialysis can be used to clear excess oxalate. Therefore, the use of Oxlumo (lumasiran) in patients on dialysis is considered ‘not medically necessary.’
Clinical Efficacy[2,3]

- The efficacy of lumasiran was based on interim data from two phase 3 trials, which measured reduction in urinary oxalate (UrOx) excretion.
  * One phase 3, multicenter, double-blind, placebo-controlled randomized controlled trial studied PH1 patients 6 years of age and older (ILLUMINATE-A).
    o Patients were randomized to lumasiran (n=26) or placebo (n=13).
    o The primary endpoint was reduction in urinary oxalate (UrOx) excretion.
    o There was a 65.4% reduction and 11.8% reduction in 24-hour urinary oxalate at month 6, in the Oxlumo (lumasiran) and placebo groups, respectively. The translates into an absolute change of -1.24 mmol/24hr/1.73m² and -0.27 mmol/24hr/1.73m², in the Oxlumo (lumasiran) and placebo groups, respectively.
  * A second phase 3, multicenter, single-arm, open-label trial studied PH1 patients less than 6 years of age (ILLUMINATE-B).
    o A total of 18 patients were enrolled in the trial, but only the first 16 were used in the primary analysis.
    o The primary endpoint was percent change in spot UrOx:Cr ratio.
    o Use of Oxlumo (lumasiran) resulted in a 71.1% reduction in spot UrOx:Cr ratio at month 6 in those treated with Oxlumo (lumasiran).

- Current available evidence is limited to reduction in urinary oxalate. Additional evidence is needed to establish the clinical benefit (e.g., prolongation of renal function, a decrease in kidney stone events, and a decrease in the need for liver/renal transplantation).

- Liver transplant is a functional cure for PH1. Therefore, use of Oxlumo (lumasiran) after liver transplant is considered ‘not medically necessary,’ as the underlying metabolic issue has been reversed by the transplant.

- Dialysis can be used to clear excess oxalate; therefore, the use of Oxlumo (lumasiran) in patients on dialysis is considered ‘not medically necessary.’

Investigational Uses

- There is the potential for off-label use of Oxlumo (lumasiran) in secondary hyperoxaluria or other forms of primary hyperoxaluria, such as type 2 or 3. However, based on the mechanism of action, Oxlumo (lumasiran) would not be effective in these populations and is not being studied. Therefore, the use in any condition is considered investigational.
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<td>HCPCS</td>
<td>J0224</td>
<td>Injection, lumasiran (Oxlumo), 0.5 mg</td>
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</table>

**Cross References**

BlueCross BlueShield Association Medical Policy, 5.01.37 - Lumasiran for Primary Hyperoxaluria Type 1 [June 2021]

**References**

2. Oxlumo (lumasiran) in the Treatment of Primary Hyperoxaluria Type 1 (PH1) to Lower Urinary Oxalate levels in Pediatric and Adult Patients. AMCP; February 2021. Alnylam Pharmaceuticals. 2020.

**Revision History**

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<td>06/17/2022</td>
<td>No criteria changes with this annual update.</td>
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<td>04/21/2021</td>
<td>New policy (effective 5/15/2021). Limits coverage to patients with genetically confirmed, clinically significant PH1, when medical management has been ineffective in controlling urinary oxalate excretion.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**  
**Policy No:** dru669  
**Topic:** Cosela, trilaciclib  
**Date of Origin:** August 15, 2021  
**Committee Approval Date:** July 16, 2021  
**Next Review Date:** July 2022  
**Effective Date:** August 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Trilaciclib (Cosela) is an intravenous medication that is intended to protect the bone marrow in patients with small cell lung cancer (SCLC) who are receiving specific chemotherapy regimens.
Policy/Criteria

Most contracts require pre-authorization approval of trilaciclib (Cosela) prior to coverage.

I. Continuation of therapy (COT): Trilaciclib (Cosela) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim. AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Trilaciclib (Cosela) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

A. A diagnosis of extensive-stage small cell lung cancer (ES-SCLC).

AND

B. The patient is being treated with a platinum/etoposide- or a topotecan-containing chemotherapy regimen.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services does not consider trilaciclib (Cosela) to be a self-administered medication.

B. When pre-authorization is approved, trilaciclib (Cosela) may be approved in doses up to 240 mg/m² given daily prior to each scheduled chemotherapy administration.

C. Authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Trilaciclib (Cosela) is considered investigational when used for all other conditions, and with cytotoxic chemotherapy other than what is described in the coverage criterion above.

Position Statement

Summary

- Trilaciclib (Cosela) is a transient inhibitor of cyclin-dependent kinase (CDK) 4 and 6. When given prior to certain cytotoxic chemotherapy regimens, it temporarily stops the development of hematopoietic stem and progenitor cells which may protect the bone marrow from chemotherapy-induced damage.

- Based on its mechanism of action, there is the concern that trilaciclib (Cosela) might also interfere with the effectiveness of cytotoxic chemotherapy. Longer term follow up in post-marketing studies is needed to evaluate this risk.

- Trilaciclib (Cosela) is approved to decrease the incidence of chemotherapy-induced myelosuppression in adult patients when administered prior to a platinum/etoposide- or topotecan-containing regimen for extensive-stage small cell lung cancer (ES-SCLC).

- The intent of this policy is to provide coverage for trilaciclib (Cosela) in the setting in which it was studied and was subsequently approved.

- In clinical trials, trilaciclib (Cosela) decreased the duration of severe neutropenia as well as the proportion of patients experiencing severe neutropenia relative to placebo. These endpoints are surrogates for fever and neutropenia and infections, which were not measured in the trials.

- The trilaciclib (Cosela) studies did not evaluate overall survival which is necessary to give important insight into whether this therapy may interfere with the effectiveness of cytotoxic chemotherapy.

- The National Comprehensive Cancer Network (NCCN) lists trilaciclib (Cosela) as an option in the population in which it is indicated in package labeling.

- Trilaciclib (Cosela) is given as an intravenous infusion just prior to each dose of cytotoxic chemotherapy in a dose of 240 mg/m².

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
- Use of trilaciclib (Cosela) with chemotherapy regimens or in conditions outside of its labeled indication has not been adequately evaluated is considered investigational.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy [1-4]

- The evidence for trilaciclib (Cosela) is based on three, small trials (GIT28-02, GIT28-03, GIT28-05) in patients with extensive-stage small cell lung cancer (ES-SCLC) who were receiving a platinum/etoposide- or topotecan-based chemotherapy regimen. These chemotherapy regimens are notable for their myelotoxicity.

- Trilaciclib (Cosela) was administered as part of supportive care prior to each dose of chemotherapy.

* The trials evaluated duration of severe neutropenia (DSN) and the proportion of patients with severe neutropenia (SN) as coprimary endpoints. DSN and SN are surrogate markers for fever and neutropenia which was not measured as an outcome in the trial.
  - The DSN was generally decreased by approximately 3.5 days in the trilaciclib (Cosela) versus the placebo arm in each of the trials.
  - The proportion of patients with SN decreased by approximately 35% in the trilaciclib (Cosela) versus the placebo arm in each of the trials.

* An FDA supplementary analysis of the trials found that the numerical advantage for trilaciclib (Cosela) to reduce infection risk, the clinical outcome of importance, was numerically small. Four of 122 patients (3%) and 7 of 118 patients (6%) in the trilaciclib (Cosela) and placebo groups were identified as having the severe AE of fever and neutropenia, respectively. The proportion of patients with grade 3 or higher pneumonia was identical in the two treatment arms.

* Though there was an incremental decrease in the number of patients who received filgrastim during the first treatment cycle in the trials, the majority of patients still required filgrastim as part of their supportive care.

- The National Comprehensive Cancer Network (NCCN) Small Cell Lung Cancer guideline lists trilaciclib (Cosela) as a potential supportive care option when given prior to platinum/etoposide- (with or without a checkpoint inhibitor) or topotecan-containing regimens for ES-SCLC. [5]
Investigational Uses [6]

- Use of trilaciclib (Cosela) in cancers other than ES-SCLC, or prior to cytotoxic chemotherapy other than that which is listed in package labeling is considered investigational.
- There is interest in using trilaciclib (Cosela) prior to cytotoxic chemotherapy for triple negative breast cancer (TNBC); however, benefit in this population has not been established.

Safety [1]

- Based on its mechanism of action (temporarily arrests the development of hematopoietic stem and progenitor cells), trilaciclib (Cosela) could theoretically protect tumor cells from the cytotoxic effects of chemotherapy. This potential risk was alluded to in one of the pivotal trials (GIT28-03) where a numeric difference in discontinuations due to disease progression disfavoring trilaciclib (Cosela) was observed. As a result of this finding, there is a post-marketing commitment (requiring at least two additional years of follow up) to assess its potential effects on chemotherapy efficacy.
- In the safety population the proportion of deaths related to treatment-emergent adverse effects (AEs) was numerically higher in the trilaciclib (Cosela) treatment arm than in the placebo treatment arm (5% versus 3%, respectively).

Dosing [7]

- Trilaciclib (Cosela) is a prophylactic medication which is administered prior to chemotherapy on each day that chemotherapy is administered. The infusion must be completed within 4 hours prior to the start of chemotherapy.
- In patients with ES-SCLC, platinum/etoposide-based regimens are generally given on Days 1, 2, and 3 of each cycle for four total cycles. Cycles are 21 to 28 days in length. Topotecan-based regimens are typically given on Days 1 through 5 of each 21-day cycle. A course of therapy is generally 4 cycles but may range up to until there is disease progression.
- Trilaciclib (Cosela) is administered intravenously over 30 minutes in a dose of 240 mg/m².

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<td>C9399</td>
<td>Unclassified drugs or biologicals (Hospital outpatient, Medicare)</td>
</tr>
</tbody>
</table>
References


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16/2021</td>
<td>New policy (effective 8/15/2021). The policy provides coverage of trilaciclib (Cosela) in patients with ES-SCLC who are receiving platinum/etoposide- or topotecan-based chemotherapy.</td>
</tr>
</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Aducanumab (Aduhelm) is an intravenous medication that is used for Alzheimer’s disease (AD). A clinical benefit, such as slowing of disease progression, of aducanumab (Aduhelm) has not been established.
Policy/Criteria

Most contracts require pre-authorization approval of aducanumab (Aduhelm) prior to coverage.

I. **Continuation of therapy (COT):** Aducanumab (Aduhelm) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

*Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.*

II. **New starts (treatment-naïve patients):** Aducanumab (Aduhelm) is considered investigational for all conditions, including Alzheimer’s disease (AD).

Position Statement

*Summary*

- Aducanumab (Aduhelm) is an intravenous therapy indicated for the treatment of Alzheimer’s disease. Aducanumab was approved via the accelerated approval pathway; continued approval may be contingent upon verification of clinical benefit in confirmatory trials.

- A clinical benefit (e.g. prolongation of independence, improved quality of life, prevention of disease progression and disability) of aducanumab (Aduhelm) has not been established.[1]

  * The results of two nearly identical unpublished studies (EMERGE and ENGAGE)[1 2] of aducanumab (Aduhelm) had inconsistent clinical benefit after 18 months of treatment. Of the two trials, one demonstrated cognitive and functional improvements based on clinical scores in a subgroup who received high-dose aducanumab while no endpoint was met in a second study regardless of dose.

  * The same studies demonstrated dose-dependent improvements in amyloid beta imaging in a subgroup population. However, the reduction of beta-amyloid plaque is a surrogate endpoint whose causal link to clinical benefit has not been established.

  * The use of aducanumab (Aduhelm) for AD is considered investigational, given the lack of overall clinical benefit and potential for harms.

- Treatment of AD is largely supportive and may include the avoidance of poly-pharmacy as well as treatment of comorbid conditions. Currently available pharmacological therapy focuses on symptom management but does not modify disease course.[3]
Clinical Efficacy

- The results of two nearly identical studies did not have consistent clinical benefit after 18 months of treatment. The FDA standard is typically 2 demonstrative clinical trials with positive data on patient reported outcomes/symptoms.

- The evidence regarding the effect of aducanumab (Aduhelm) is based on the change from baseline on the CDR-Sum of Boxes is inconclusive. The (CDR-SB) is an extensive cognitive and functional assessment tool used primarily in clinical trials. Higher scores suggest greater disease severity; a minimal clinically significant difference (MCID) is estimated to be 1-2 points.[4]

- Patients in the pivotal trials had prodromal or mild AD along with confirmed amyloid pathology [positive amyloid positron emission tomography (PET) scan]. All patients in the trials had either mild cognitive impairment associated with AD or mild AD; patients with more severe disease were not studied.

* EMERGE: A statistically significant improvement in CDR-SB was observed in the high-dose aducanumab arm (difference vs. placebo -0.39 [95% CI -0.69 to -0.09]) but not the low-dose arm. Although the results were statistically significant in the high-dose arm, the change in CDR-SB was less than the 1-2 point change that has been suggested as the MCID.

* ENGAGE: Neither low dose or high dose had any statistically significant improvement vs placebo in CDR-SB or any secondary efficacy endpoints.

- Both studies demonstrated significant improvements in amyloid plaques based on PET imaging; however, the effect of amyloid beta on clinical outcomes has not yet been established. There have been 16 trials of other drugs in which the treatment arm did worse than placebo despite reduction of amyloid, albeit typically in a population with more severe disease.

- Although the existing evidence is promising, an additional confirmatory trial is needed to establish the safety and efficacy of aducanumab (Aduhelm) in AD. Aducanumab has not yet proven to improve clinically relevant outcomes such as quality of life, prolongation of independent functioning, or prevention of disease progression and disability, or mortality.

- The FDA advisory committee as well as the Institute for Clinical and Economic Review (ICER) openly advised against approval of aducanumab.[5 6] Prior to approval, the American Academy of Neurology (AAN) advised against a broad label approval and that further characterization of patients who would benefit most is warranted.[3]

- At this time, there is not enough data available to determine that the benefits of aducanumab use would outweigh the risks or provide any meaningful benefit in the AD population. Aducanumab has uncertain benefit in the face of known harms.
**Safety**

- 40% of patients on the high-dose aducanumab (Aduhelm) had amyloid related imaging abnormalities (ARIA) which may be linked to brain bleeds/swelling.
- Labeling includes periodic brain magnetic resonance imaging (MRI) to monitor for ARIA.

**References**


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16/2021</td>
<td>New policy. Effective 8/15/2021</td>
</tr>
</tbody>
</table>

**Drug names identified in this policy are the trademarks of their respective owners.**
Medication Policy Manual

**Topic:** Nulibry, fosdenopterin

**Committee Approval Date:** July 16, 2021

**Effective Date:** August 15, 2021

**Policy No:** dru671

**Date of Origin:** August 15, 2021

**Next Review Date:** July 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Fosdenopterin (Nulibry) is an intravenous medication used in the treatment of molybdenum cofactor deficiency type A.
Policy/Criteria

Most contracts require pre-authorization approval of fosdenopterin (Nulibry) prior to coverage.

I. Continuation of therapy (COT): Fosdenopterin (Nulibry) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Fosdenopterin (Nulibry) may be considered medically necessary when criteria A and B below are met.

A. A diagnosis of molybdenum cofactor deficiency (MoCD) type A that is confirmed by genetic testing, which shows a mutation in the MOCS1 gene.

   AND

B. Attestation that the patient does not have advanced disease that is unlikely to respond to treatment, as evidenced by extensive cerebral necrosis on MRI or severe encephalopathy.
III. Administration, Quantity Limitations, and Authorization Period

A. When coverage criteria are met, fosdenopterin (Nulibry) is covered under the medical benefit.

B. When pre-authorization is approved, fosdenopterin (Nulibry) will be authorized in quantities sufficient for up to a 30-day supply at a dose of up to 0.9mg/kg once daily.

C. Authorization may be reviewed at least every 6 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement.

IV. Fosdenopterin (Nulibry) is considered investigational when used for all other conditions, including but not limited to:

A. Other types of MoCD (e.g., type B or C).

B. Sulfite oxidase deficiency.

Position Statement

Summary

- Molybdenum cofactor deficiency (MoCD) is an ultra-rare, autosomal recessive, inborn error of metabolism caused by disruption in molybdenum cofactor (MoCo) synthesis which is vital to prevent buildup of s-sulfocysteine, a neurotoxic metabolite of sulfite. Accumulation of this neurotoxin causes severe encephalopathy and intractable seizures with a high infant mortality rate.

- There are three types (A, B, and C) of MoCD, each caused by a different genetic mutation, but clinically indistinguishable.

- In patients with type A, a genetic mutation in the MOCS1 gene results in a deficiency in the production of cyclic pyranopterin monophosphate (cPMP), a necessary step in the biochemical pathway for MoCo production.

- Fosdenopterin (Nulibry) is synthetic form of cPMP, allowing for MoCo synthesis to occur and prevent the buildup of the neurotoxic s-sulfocysteine.

- The intent of this policy is to cover fosdenopterin (Nulibry) for the indication and dose for which it has been shown to be safe and effective, for MoCD type A, as detailed in the coverage criteria.

- In the pooled analysis of three studies of patients with MoCD type A, fosdenopterin (Nulibry) improved survival compared with genotype matched controls.

- Patients with very advanced disease, including those with extensive cerebral necrosis, did not have a clinically relevant response to treatment.

- The diagnosis of MoCD type A may be challenging and requires genetic testing in combination with clinical features.
- Fosdenopterin (Nulibry) may be covered in doses of up to 0.9 mg/kg/day, the highest dose studied in clinical trials. The safety and effectiveness of higher doses have not been established.
- The use of fosdenopterin (Nulibry) for any other indication, including other types of MoCD, is considered investigational.

**Clinical Efficacy[1 2]**

- Efficacy for fosdenopterin (Nulibry) was based on the pooled results of three low quality trials (MCD-201, MCD 202, and MCD 501); which enrolled a total of 13 patients with MoCD Type A. Survival results from the three studies were compared to untreated genotype-matched MoCD type A patients from a natural history study.
- The estimated survival probability was 84% in patients that received daily fosdenopterin, compared to 55% in the untreated genotype-matched cohort from a natural history trial, at year 3.
- In trial MCD-501, the only trial with published clinical results, efficacy was dependent on the severity of disease and extent of encephalopathy prior to initiation of the investigational version of fosdenopterin (recombinant cPMP).
  * Patients that were started on recombinant cPMP treatment prior to the onset of severe encephalopathy (n=3) were spared from significant disability. They acquired motor milestones and have “low normal” cognitive development, without sensory deficits or seizures. Speech delay and mild muscular hypotonia were noted in these patients.
  * Patients with advanced encephalopathy (n=3) had severe neurodevelopmental disability and there was no progress in motor skills.
  * Patients with extensive cerebral necrosis on MRI (n=3) received no benefit from the therapy, and it was discontinued, as their disease was deemed too severe to benefit from recombinant cPMP treatment.

**Investigational Uses[2]**

- The safety and effectiveness of fosdenopterin (Nulibry) in conditions other than MoCD type A have not been established.
- MoCD type B patients, enrolled in MCD-501, received no benefit from recombinant cPMP therapy. This is further validated by the mechanism of action of fosdenopterin (Nulibry), which would not be expected to provide benefit in MoCD type B or C.

**Safety[3]**

- During clinical trials the most frequent adverse events (>25% incidence) were catheter-related complications, pyrexia, viral infection, pneumonia, otitis media, vomiting, cough/sneezing, viral upper respiratory infection, gastroenteritis, bacteremia, and diarrhea.
**Dosing**[3]

- Fosdenopterin (Nulibry) is administered intravenously once daily, in doses up to 0.9 mg/kg.
- Efficacy and dosing of fosdenopterin (Nulibry) in MoCD type A patients in doses higher than 0.9 mg/kg IV once daily has not been established.

**References**


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/16/2021</td>
<td>New policy (effective 8/15/2021). Limits coverage to patients with genetically confirmed molybdenum cofactor deficiency (MoCD) type A without advanced disease, the setting in which clinical studies showed benefit.</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru672

**Topic:** Medications for Multiple Myeloma, other cancers, and other hematologic disorders

- Blenrep, belantamab mafodotin-blmf
- Darzalex, daratumumab
- Darzalex Faspro, daratumumab and hyaluronidase-fihj
- Empliciti, elotuzumab
- Kyprolis, carfilzomib
- Ninlaro, ixazomib
- Pomalyst, pomalidomide
- Sarclisa, isatuximab-irfc

**Date of Origin:** October 1, 2021

**Committee Approval Date:** June 17, 2022

**Next Review Date:** June 2023

**Effective Date:** September 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Medications included in this policy are used primarily to treat multiple myeloma, but also include various other cancers, and other hematologic disorders.
Policy/Criteria

Most contracts require pre-authorization approval of Medications for Multiple Myeloma, other cancers, and other hematologic disorders ("Medications for MM") prior to coverage.

I. Continuation of therapy (COT): Medications for MM may be considered medically necessary for COT when criteria A and B below are met.

A. The patient is established on this therapy AND one of the following situations applies (criterion 1 or 2 below):
   1. Prior to current health plan membership AND the medication was covered by another health plan.
      PLEASE NOTE: If the diagnosis is not listed in the coverage criteria below, written documentation of coverage must be provided, such as an approval letter or paid claim.
      OR
   2. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

B. If the diagnosis is listed in the 'Not Medically Necessary Uses' or 'Investigational Uses' coverage criteria below, documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria must be provided.

   Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity.
   Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve) patients – Medically Necessary Uses:

The medications listed in Table 1 may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that the applicable diagnosis-based criteria below are met.
<table>
<thead>
<tr>
<th>Diagnosis:</th>
<th>Coverable medication(s)</th>
<th>AND the following are met:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaposi sarcoma (KS)</td>
<td>Pomalyst (pomalidomide)</td>
<td>1. Prior chemotherapy (such as listed in <em>Appendix I</em>) was not effective, is contraindicated, or was not tolerated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>AND</strong></td>
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<tr>
<td></td>
<td></td>
<td>2. If the KS is associated with acquired immune deficiency syndrome (AIDS-related), highly active antiretroviral therapy (HAART) was not effective.</td>
</tr>
<tr>
<td>Multiple myeloma (MM)</td>
<td>Blenrep (belantamab mafodotin-blmf)</td>
<td>1. A diagnosis of MM.</td>
</tr>
<tr>
<td></td>
<td>Kryprolis (carfilzomib)</td>
<td><strong>AND</strong></td>
</tr>
<tr>
<td></td>
<td>Darzalex (daratumumab)</td>
<td>2. <em>For Darzalex, Darzalex Faspro, Empliciti, Sarclisa only</em>: Will not be used in combination with another monoclonal antibody [such as listed in <em>Appendix I</em>].</td>
</tr>
<tr>
<td></td>
<td>Darzalex Faspro (daratumumab and hyaluronidase-fihj)</td>
<td><strong>AND</strong></td>
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<tr>
<td></td>
<td>Empliciti (elotuzumab)</td>
<td>3. <em>For Empliciti, Sarclisa, Ninlaro only</em>: The MM is relapsed or refractory to at least one prior therapy.</td>
</tr>
<tr>
<td></td>
<td>Ninlaro (ixazomib)</td>
<td><strong>AND</strong></td>
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<tr>
<td></td>
<td>Pomalyst (pomalidomide)</td>
<td>4. <em>For Sarclisa only</em>: The MM was not refractory to prior daratumumab (refractory is defined as disease progression while on therapy, or within 60 days of the last dose).</td>
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<tr>
<td></td>
<td>Sarclisa (isatuximab-irfc)</td>
<td><strong>AND</strong></td>
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<tr>
<td>Light chain amyloidosis (AL)</td>
<td>Darzalex (daratumumab)</td>
<td>5. <em>For Blenrep only</em>: Criteria a, b, and c below are met:</td>
</tr>
<tr>
<td></td>
<td>Darzalex Faspro (daratumumab and hyaluronidase-fihj)</td>
<td>a. There has been disease progression on or after at least four prior MM regimens including all of the following (i, ii, and iii):</td>
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<tr>
<td></td>
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<td>i. An anti-CD38 monoclonal antibody.</td>
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<td>ii. A proteosome inhibitor.</td>
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<td></td>
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<td>iii. An immunomodulatory (IMID) agent.</td>
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<td>b. Belantamab mafodotin will be used as monotherapy.</td>
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<td></td>
<td>c. No prior treatment with a therapy directed against B-cell maturation antigen (BCMA), including with belantamab mafodotin.</td>
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<td><strong>AND</strong></td>
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<td></td>
<td>2. The patient has had no prior therapy for AL (newly diagnosed).</td>
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<td></td>
<td></td>
<td><strong>AND</strong></td>
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<td>3. Daratumumab will be administered in combination with bortezomib, cyclophosphamide, and dexamethasone.</td>
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<td></td>
<td></td>
<td><strong>AND</strong></td>
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<td></td>
<td></td>
<td>4. No prior treatment with daratumumab.</td>
</tr>
</tbody>
</table>
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers oral medications [including Ninlaro (ixazomib), Pomalyst (pomalidomide)] coverable only under the pharmacy benefit (as self-administered medications).

B. Regence Pharmacy Services considers injectable medications [including Blenrep (belantamab mafodotin-blmf), Kyprolis (carfilzomib), Darzalex (daratumumab), Darzalex Faspro (daratumumab and hyaluronidase-fihj), Empliciti (elotuzumab), and Sarclisa (isatuximab-irfc)] coverable only under the medical benefit (as provider-administered medications).

C. When pre-authorization is approved, each drug will be authorized as follows:

1. **Self-administered medications:** Up to the limits in Table 2 until disease progression.

2. **Provider-administered medications:** Up to FDA-recommended dose and frequency limits until disease progression.

D. Authorization may be reviewed at least annually. For any ongoing authorization, clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

<table>
<thead>
<tr>
<th>Table 2. Self-Administered Medication Quantity Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ninlaro (ixazomib)</td>
</tr>
</tbody>
</table>
| Pomalyst (pomalidomide) | - MM: Up to 21 capsules per 28 days  
- KS: Up to 42 capsules per 28 days |

Key: KS=Kaposi sarcoma; MM=multiple myeloma

IV. Investigational Uses

A. Combination use of any medications in this policy, if specifically excluded in the coverage criteria above, including use of any two monoclonal antibodies for MM, including but not limited to Darzalex (daratumumab), Empliciti (elotuzumab), or Sarclisa (isatuximab-irfc) [see Appendix 1].

B. Unless otherwise specified in the coverage criteria above, medications included in this policy are considered investigational when used for all other conditions, due to lack of published data, lack of high-quality data, or lack of positive data.
Position Statement

Summary

- The intent of this policy is to cover medications for multiple myeloma, other cancers, and hematologic disorders (“medications for MM”) in settings where they have been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.

  * Where there is lack of proven additional benefit and/or lack of demonstrated health outcomes (such as overall survival or improved quality of life) relative to alternative therapies, use of medications for MM is not coverable (“not medically necessary” or “investigational”).

  * It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.

- Many of the clinical indications for medications for MM have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS), measurements of tumor markers, which are not proven to accurately predict clinically important outcomes for MM, such as improved overall survival (OS), symptom control, or improved quality of life (QoL).

- Triplet MM regimens (drug regimens that combine medications from three different MM medication classes) have become the standard of care in treating MM. However, there are insufficient studies that compare regimens to clearly establish superiority of any one regimen or medication within a class (by mechanism of action).

- The safety and efficacy of monoclonal antibodies (mAbs) for MM in combination with other monoclonal antibodies for MM, or in conditions not included in coverage criteria (as listed above), have not been established. Currently, there are no published trials of the use of combination anti-MM monoclonal antibodies. Additional trials are ongoing.

- The National Comprehensive Cancer Network (NCCN) multiple myeloma guideline lists all drugs in this policy for use in MM in various settings, as well as other associated cancers and hematologic disorders. Choice of initial MM therapy is frequently based on transplant eligibility.

- Medications for MM are coverable for up to the dose and quantity as specified in the coverage criteria. For many medications for MM, they are given until disease progression, unacceptable toxicity, where others may be given for a specific duration (refer to coverage criteria). There is no conclusive additional benefit with higher doses or when given for longer durations except as specified in the coverage criteria.

- There are ongoing studies using medications for MM in a variety of other settings and other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.
Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

Clinical Efficacy

Multiple Myeloma (MM)

- Medications for multiple myeloma may be covered as detailed in the coverage criteria when there is documentation of a diagnosis of multiple myeloma.
- MM is a malignant neoplasm of plasma cells. The cells accumulate in bone marrow which leads to bone destruction and marrow failure. Skeletal destruction can lead to osteolytic lesions, osteopenia, and/or pathologic fractures. Bone pain is present at diagnosis in approximately 60% of patients. [1]
- MM is not curable using current approaches. Nearly all patients relapse on their initial treatment and require further therapy. The duration of response is generally shorter with each successive therapy. The five-year survival rate is approximately 52%. [2]
- Several subtypes of MM have been identified at the genetic and molecular level. Specific chromosomal translocations, deletions, and amplifications can be used to stratify disease risk (high, intermediate-, or standard-risk). [2]
- Choice of therapy may be based on several characteristics including whether the patient is a candidate for transplant, the disease risk category, genetic markers, and response to prior therapy. [2]
- Existing treatment approach usually involves use of multi-drug therapy regimens, referred to as doublet-, triplet-, or quad-therapy, with medications such as steroids, cytotoxic chemotherapy, immunomodulators (IMIDs), proteosome inhibitors (PIs), and monoclonal antibodies (mAbs). However, there is insufficient evidence to establish the safety or efficacy of the use of combination of monoclonal antibodies for MM.
The evidence for some medications for MM is limited to the relapsed/refractory (r/r) setting, such as with the proteosome inhibitor, Ninlaro (ixazomib), as detailed in the coverage criteria. Similarly, Blenrep (belantamab mafodotin-blmf) is only coverable as a monotherapy for MM refractory to multiple other therapies.

There is insufficient evidence that any one medication for MM (by mechanism of action/class) is superior to another. There is limited comparative efficacy for MM.

**Pomalyst (pomalidomide) for MM**

- Approval of pomalidomide was based on a single, open-label trial in 221 patients with r/r MM, comparing pomalidomide alone vs. pomalidomide plus low-dose dexamethasone. [3, 4]
  * Patients enrolled in the trial had a minimum of two prior MM therapies. Prior therapies must have included lenalidomide, and bortezomib.
  * ORRs were 7.4% and 29.2% with pomalidomide and pomalidomide plus dexamethasone, respectively.

- A second open-label trial compared pomalidomide plus low-dose dexamethasone versus high-dose dexamethasone in 455 refractory MM patients. Subjects in the pomalidomide group had a longer median overall survival at 15.4 months of follow-up (13.1 vs. 8.1 months, HR 0.75, p = 0.009). Confidence in this result is reduced by high attrition rate during the trial, the lack of blinding, and crossover between treatment groups. [5]

**Kyprolis (carfilzomib) for MM**

- Initial approval of carfilzomib was based on one single-arm trial in 266 subjects that evaluated ORR in patients with relapsed MM. [6]
  * Patients enrolled in the trial had received at least two prior therapies (including bortezomib and an immunomodulator [IMID], lenalidomide or thalidomide).
  * The median number of prior therapies was five and 95% were refractory to their last line of therapy.
  * The study reported an ORR of 23.7% (17.7% partial responses, 4.9% very good partial response, and 0.4% complete response).
  * There is low confidence in the evidence from the study because a cause effect relationship cannot be established due to the lack of comparator.

- A single large, randomized, open-label trial evaluated the combination of carfilzomib plus lenalidomide/dexamethasone vs. lenalidomide/dexamethasone (control group) in relapsed MM. Subjects enrolled in the trial had between one and three prior therapies. [7]
  * The median PFS was 26.3 months and 17.6 months in the carfilzomib and control arm, respectively. Corresponding ORRs were 87.1 and 66.7%.
  * Although a lower HR for death was observed in the treatment group (HR 0.79, p = 0.04), survival data is not mature; the durability and clinical meaningfulness of this difference is not fully elucidated.
  * There is low confidence in these data due to high attrition (~30%) and lack of blinding.
Carfilzomib/dexamethasone was shown to improve median OS relative to bortezomib/dexamethasone as a subsequent therapy for r/r MM. The clinical relevance of this finding is uncertain as the majority of patients had relapsed after prior bortezomib, which likely disadvantages the bortezomib treatment arm. However, it is supportive of the efficacy of carfilzomib as a subsequent proteosome inhibitor therapy for MM. [8]

**Ninlaro (ixazomib) for MM**

- The evidence for efficacy for ixazomib comes from a single randomized, controlled trial that demonstrated improvements in PFS, a surrogate endpoint, in patients who had r/r MM who had received at least one prior line of therapy. [9, 10]
  * All patients had at least one prior therapy for MM. A majority had prior bortezomib or melphalan. Patients refractory to lenalidomide or proteosome inhibitors were excluded.
  * Ixazomib improved PFS vs. lenalidomide/dexamethasone alone (20.6 vs 14.7 months).
  * A more recent RCT evaluated ixazomib as a maintenance therapy after hematopoietic stem cell transplant (HSCT). [11] An interim analysis reported a PFS advantage relative to placebo; however, OS data are not mature. The trial remains blinded and is ongoing. Ixazomib is not currently approved for use in this treatment setting.

**Farydak (panobinostat) for MM**

- Farydak (panobinostat) was a histone deacetylase inhibitor that received accelerated approval for relapsed or refractory MM. It was withdrawn from the US commercial market in early 2022. [12, 13, 14]
- The manufacturer is making Farydak (panobinostat) available to certain MM patients in the US who are currently receiving it. Refer to [www.farydak.com/notice/](http://www.farydak.com/notice/) for more information.

**Darzalex (daratumumab) for MM**

- Darzalex (daratumumab) and Darzalex Faspro (daratumumab and hyaluronidase-fihj) are CD38-directed monoclonal antibody products for the treatment of MM. Darzalex is given intravenously (IV), while Darzalex Faspro is given subcutaneously (SC). [15, 16]
- There is no evidence that Darzalex (daratumumab) or Darzalex Faspro (daratumumab and hyaluronidase-fihj) improves any clinical outcome such as OS or QOL life. Current evidence is limited to incremental improvement in RR or PFS over standard therapies.
- Although there may be differences in FDA-approved indications between products, the guidelines support interchangeability. There are ongoing studies evaluating Darzalex Faspro (daratumumab and hyaluronidase-fihj) in combination with other MM medications (other than those regimens that have already been approved as safe and effective). The NCCN MM guideline footnotes Darzalex Faspro (daratumumab and hyaluronidase-fihj) as being alternative to Darzalex (daratumumab) across all of the settings for which Darzalex (daratumumab) is recommended. [2]
Darzalex (daratumumab) is given in a dose of 16 mg/kg IV, whereas Darzalex Faspro (daratumumab and hyaluronidase-fihj) is given in a dose of 1,800 mg – 30,000 units SC. [15, 16]

**Darzalex (daratumumab) intravenous (IV) formulation:**

**As monotherapy for relapsed and/or refractory MM:**

- The efficacy of Darzalex (daratumumab) IV is based on two single-arm, unblinded clinical studies in patients with r/r MM. Patients had received a median of 4-5 prior lines of therapy. [17, 18]
  - Common prior therapies included Velcade (bortezomib), Revlimid (lenalidomide), and Pomalyst (pomalidomide).
  - A majority of patients were refractory to both a proteosome inhibitor (PI) [such as Velcade (bortezomib)] and an immunomodulatory agent (iMiD) [e.g., Revlimid (lenalidomide)].
  - Efficacy was evaluated based on ORR. The ORR in one study was 29.2% and 36% in the second study.

**As an add-on to standard therapy for relapsed and/or refractory MM:**

- Two RCTs evaluated Darzalex (daratumumab) IV as an add-on to backbone therapy with either dexamethasone plus Revlimid (lenalidomide), or dexamethasone plus Velcade (bortezomib) in patients with r/r MM who had at least one prior therapy. [20, 21]
  - Both trials evaluated PFS as the primary endpoint and reported a 60% reduction in disease progression or death (PFS). Median PFS was not yet reached, so absolute differences in PFS between treatment groups is unknown.
  - The following flaws may lower confidence in the reported results: Neither study was blinded, and performance bias due to high attrition cannot be ruled out.

- An uncontrolled (single-arm), open-label trial evaluated Darzalex (daratumumab) IV as an add-on to backbone therapy with dexamethasone plus Pomalyst (pomalidomide). Patients enrolled in the study had a median of four prior MM therapies. [22]
  - The ORR was 59.2%, with 5.8% complete responses. Although results may appear impressive relative to historical controls, it cannot be concluded that add-on Darzalex (daratumumab) IV improves any clinical outcome relative to dexamethasone and Pomalyst (pomalidomide) alone.
  - Evidence from this trial is of very low quality due to the lack of comparator and use of an unvalidated surrogate endpoint.

**As a primary MM therapy when autologous stem cell transplant is not an option:**

- A randomized, open-label trial showed improved PFS at 18 months with Velcade (bortezomib)/melphalan/prednisone (BMP) plus Darzalex (daratumumab) IV vs. BMP alone, in newly diagnosed MM not eligible for an autologous stem cell transplant (ASCT). [23]
  - Patients enrolled in the trial either had coexisting conditions which precluded them from receiving high-dose chemotherapy with ASCT, or were 65 years of age or older (92% of the population).
The 18-month PFS was 71.6% [95% CI, 65.5, 76.8] and 50.2% [43.2, 56.7%] in the daratumumab and control groups, respectively. Median follow up at the time of the interim analysis was 16.5 months.

**Darzalex Faspro (daratumumab and hyaluronidase-fihj) subcutaneous (SC) formulation:** [16]
- The safety and efficacy of Darzalex Faspro (daratumumab and hyaluronidase-fihj) SC is based on previous Darzalex (daratumumab) IV studies. Pharmacokinetic studies and small, single-arm, observational trials evaluating PFS in the following settings were used as confirmatory evidence for Darzalex Faspro (daratumumab and hyaluronidase-fihj):
  * Newly diagnosed MM in combination with Velcade (bortezomib), melphalan, and prednisone.
  * r/r MM in combination with Revlimid (lenalidomide) and dexamethasone.
  * r/r MM as a monotherapy after disease progression on at least three prior therapies (including a proteosome inhibitor and immunomodulator), or progression after at least two prior PI and iMiD combination regimens.

**Sarclisa (isatuximab-irfc) for MM**
- Sarclisa (isatuximab-irfc) is an intravenously administered CD38-directed monoclonal antibody. Its mechanism of action is similar to that of Darzalex (daratumumab) IV.
- The initial FDA approval was based on low-quality data from a single, open-label (non-blinded), randomized, controlled trial in r/r MM. The trial compared Sarclisa (isatuximab-irfc), Pomalyst (pomalidomide) and dexamethasone (IPD) with PD alone. The overall confidence in the study results is limited due to several concerns (lack of blinding, potential imbalance in populations, and high rate of differential attrition). [24, 25]
  * Patients had been treated with a minimum of two prior MM therapies.
  * All patients had no response to prior Revlimid (lenalidomide) and proteosome inhibitors (used either separately or in combination). Non-response was defined as disease progression on or within 60 days, intolerance to Revlimid (lenalidomide) or the proteosome inhibitor, or disease progression within 6 months after achieving at least a partial response.
  * Patients with prior use of Pomalyst (pomalidomide) were not allowed in the study, nor were those with disease refractory to prior therapy with daratumumab, another CD-38 monoclonal antibody. *Refractory was defined as having achieved an initial response with subsequent disease progression while on therapy, or progression within 60 days of the last dose.*
  * The trial reported a PFS benefit with the addition of Sarclisa (isatuximab-irfc) to PD, a surrogate endpoint. OS will be analyzed as a secondary endpoint; however, no significant difference in survival between the study arms has been noted to date.
Empliciti (elotuzumab) for MM

- Empliciti (elotuzumab) is an intravenously administered SLAMF7-directed immunostimulatory monoclonal antibody for the treatment of r/r MM.

- The initial evidence for efficacy of Empliciti (elotuzumab) was based on a single, phase 3, randomized, open-label trial in patients who had received one to three prior therapies for MM [ELOQUENT-2 (NCT01239797)]. The median number of prior treatments was two. Velcade (bortezomib) was the most common prior therapy (70%), followed by melphalan (65%), Thalomid (thalidomide) (48%), and Revlimid (lenalidomide) (6%). Empliciti (elotuzumab) improved PFS, a surrogate endpoint. However, the effect of Empliciti (elotuzumab) on clinically relevant outcomes such as overall survival or quality of life is not known.

  * Empliciti (elotuzumab) plus Revlimid (lenalidomide)/dexamethasone was compared to Revlimid (lenalidomide)/dexamethasone alone.

  * Elotuzumab resulted in a 4.5-month PFS advantage compared to Revlimid (lenalidomide) and dexamethasone alone (19.4 months vs 14.9 months, respectively).

- Subsequently, Empliciti (elotuzumab) was studied in combination with Pomalyst (pomalidomide)/dexamethasone vs. Pomalyst (pomalidomide)/dexamethasone in a single, phase 3, randomized, open-label trial (n=117) in patients with r/r MM [ELOQUENT-3]. Empliciti (elotuzumab) improved ORR, as well as PFS, surrogate endpoints. However, the effect of Empliciti (elotuzumab) on clinically relevant outcomes such as overall survival or quality of life is not known.

  * The median number of prior treatments was three. Prior therapies included stem cell transplant (55%), Velcade (bortezomib) (100%), Revlimid (lenalidomide) (99%), cyclophosphamide (66%), melphalan (63%), Kyprolis (carfilzomib) (21%), and Darzalex (daratumumab) IV (3%).

  * The patient population was highly-refractory to prior therapies: Revlimid (lenalidomide)-refractory (87%); proteosome inhibitor-refractory (80%); Revlimid (lenalidomide)- and proteosome inhibitor-refractory (70%).

  * Empliciti (elotuzumab) improved PFS by 5.58-months vs. Pomalyst (pomalidomide)/dexamethasone alone (10.25 months vs 4.67 months, respectively).

- A smaller, preliminary (phase 2) trial evaluated elotuzumab as an add-on to Velcade (bortezomib) plus dexamethasone. A 2.8-month PFS advantage was reported.

Blenrep (belantamab mafodotin-blmf) for MM

- Blenrep (belantamab mafodotin-blmf) is an intravenously administered antibody-drug conjugate that is directed against B-cell maturation antigen (BCMA) which is expressed on normal B-lymphocytes and multiple myeloma (MM) cells. It delivers cytotoxic chemotherapy to the cells which ultimately results in cell death. Blenrep (belantamab mafodotin-blmf) is used as a monotherapy (not in combination with any other MM medications). [30]
- The efficacy of Blenrep (belantamab mafodotin-blmf) is based on a low-quality, open-label (non-blinded), single-arm (no comparator), dose-finding trial in patients with r/r MM. [31, 32] Blenrep (belantamab mafodotin-blmf) had a 31% ORR, a surrogate endpoint. However, the effect of Blenrep (belantamab mafodotin-blmf) on clinically relevant outcomes such as overall survival or quality of life is not known. This was an FDA accelerated approval meaning that a clinical benefit has not been confirmed.
  
  * Patients enrolled in the study had MM that progressed during or after a minimum of four prior MM regimens. Prior regimens must have included therapy with an anti-CD38-directed monoclonal antibody, an immunomodulatory agent, and a proteosome inhibitor.
  
  * Additionally, all patients enrolled in the trial either had a prior autologous stem cell transplant (SCT) or were ineligible for transplant due to comorbidities.
  
  * The trial excluded patients who had a prior allogeneic SCT or anti-BCMA directed therapy (such as anti-BCMA CAR-T cell therapy).
  
  * There was a 31% overall response rate reported with the 2.5 mg/kg dose (FDA-approved dose). Only one patient was reported to have a complete response. There was no added benefit, but greater toxicity, in the 3.4 mg/kg dose cohort.

- There are significant safety risks with this drug, particularly related to ocular toxicity (refer to safety section below). In the absence of any proven benefit, use of this medication should be weighed carefully.

- It is not known how Blenrep (belantamab mafodotin-blmf) compares with any other palliative MM therapy.

**Pepaxto (melphalan flufenamide) for MM**

- Pepaxto (melphalan flufenamide) has been withdrawn from the market because harms were found to exceed any potential for benefit in MM.

**Kaposi Sarcoma (KS)**

- The approval of Pomalyst (pomalidomide) in KS is based on an observational trial that followed 18 patients who were HIV-positive, and 10 patients who were HIV-negative. The trial evaluated tumor response as the endpoint. [35]

- The trial excluded patients with symptomatic pulmonary or visceral KS.

- The majority (75%) of subjects in the trial had received prior chemotherapy for their KS. Patients who were HIV-positive also had to have been receiving highly active antiretroviral therapy (HAART) for a minimum of two to three months without regression of their KS prior to being treated with pomalidomide. [35]

- The NCCN AIDS-related KS guideline recommends liposomal doxorubicin as the preferred front-line therapy for KS. Treatment in HIV-negative patients parallels treatment in the HIV-positive population. Pomalidomide is a preferred regimen after failure of front-line chemotherapy. [36]
**Light chain amyloidosis (AL)**

- The approval (FDA Accelerated approval) of Darzalex Faspro (daratumumab and hyaluronidase-fihj) SC in light chain amyloidosis (AL) is based on an open-label RCT [ANDROMEDA] that evaluated an unvalidated surrogate as the primary endpoint. As per FDA Accelerated approval regulations, additional evidence is needed to confirm there is a clinical benefit for continued approval. [16]

  * The trial compared the addition of Darzalex Faspro to Velcade (bortezomib)/cyclophosphamide/dexamethasone (D-VCd) with VCd alone.

  * Patients enrolled in the study had newly diagnosed, measurable (hematologic) disease that affected at least one organ (e.g., heart, liver, kidney).

  * Patients with certain cardiac disease (e.g., NYHA Class IIIB and IV) were not allowed to enroll in the trial.

  * Per protocol, therapy was administered for a maximum of two years, or until there was disease progression.

  * Complete hematologic response HemCR, the primary endpoint, was achieved in 42% and 13% of the D-VCd and VCd treatment groups, respectively.

  * HemCR has not been shown to accurately predict any clinically important outcome (e.g., improved survival or quality of life).

- The NCCN Systemic Light Chain Amyloidosis guideline lists D-VCd among the preferred treatment options for front-line use in AL. [44]

**Safety [37]**

- Overall, medications for MM, by class/mechanism of action, appear to have similar safety profiles (based on indirect comparisons). There is no reliable evidence to allow conclusion that any one medication for MM (by class) is safer or more tolerable than another, given lack of comparative safety data. Common adverse events include:

  * IMIDs: Neutropenia, fatigue, anemia, constipation, nausea, diarrhea, dyspnea, upper respiratory tract infections, back pain, and pyrexia. Boxed warnings for embryo-fetal toxicity, venous thromboembolism, and hematologic toxicity. A restricted distribution program (Risk Evaluation and Management Strategy, “REMS”) is in place to prevent accidental fetal exposure. Doses may be modified for hematologic toxicity.

  * Proteosome inhibitors: gastrointestinal toxicity, thrombocytopenia, and peripheral neuropathy; severe: cardiac toxicity.

  * Monoclonal antibodies: infusion-related reactions, neutropenia, upper respiratory tract infections, and diarrhea. Premedication with antihistamines, antipyretics, and corticosteroids is recommended. Of note: The safety of Darzalex Faspro (daratumumab and hyaluronidase-fihj) parallels that of the intravenous product.

  * Alkylating Agents: bone marrow suppression (including anemia, leukopenia, lymphocytopenia, neutropenia, and thrombocytopenia), gastrointestinal toxicity (including nausea and vomiting), renal toxicity, fatigue. Boxed warnings for severe marrow suppression leading to infection or bleeding, hypersensitivity reactions (including anaphylaxis), and potential secondary malignancy.
Overall tolerability of some medications for MM may limit utility:

* **HDAC inhibitor Farydak (panobinostat):** labeling contains a boxed warning for severe diarrhea (25% severe), and cardiac toxicity, including severe and fatal cardiac ischemic events, as well as severe arrhythmias. Therapy should be interrupted at the onset of moderate diarrhea (4 to 6 stools per day). Other serious toxicities include hemorrhage, hepatotoxicity, and embryo-fetal toxicity. Electrolyte abnormalities are also common. [13]

* **Blenrep (belantamab mafodotin-blmf):** Adverse effects requiring a modification in therapy or supportive care occurred in 98% of patients in the Blenrep (belantamab mafodotin-blmf) study. Blenrep (belantamab mafodotin-blmf) has a boxed warning for changes in the corneal epithelium (keratopathy) resulting in changes in vision, including severe vision loss and corneal ulcer, blurred vision, and dry eyes. A REMS program in place to ensure education on this risk and that ophthalmologic examinations are performed prior to starting therapy and prior to each dose of medication (every three weeks). [30, 38]

* **Xpovio (selinexor):** is associated with significant toxicity, need for dose modifications, and treatment-related deaths (see Xpovio policy for details). [39-42]

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**Appendices**

### Appendix 1: Classification of Medications used for Multiple Myeloma

<table>
<thead>
<tr>
<th>Chemotherapy</th>
<th>Immunomodulators (IMIDs)</th>
<th>Proteosome Inhibitors (PIs)</th>
<th>Monoclonal Antibodies (mAbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ cyclophosphamide • doxorubicin • Doxil (liposomal doxorubicin) • melphalan HCl (generic, Evomela) • vincristine</td>
<td>✔️ Revlimid (lenalidomide) • Pomalyst (pomalidomide) • Thalomid (thalidomide)</td>
<td>✔️ bortezomib (generic Velcade) • Kyprolis (carfilzomib) • Ninlaro (ixazomib)</td>
<td>Anti-CD38 • Darzalex (daratumumab) • Sarclisa (isatuximab-irfc) anti-SLAMP7 • Empliciti (elotuzumab)</td>
</tr>
<tr>
<td>✔️ Xpovio (selinexor)</td>
<td>Anti-BCMA therapy</td>
<td></td>
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</tbody>
</table>
### Table 3. Investigational Uses

<table>
<thead>
<tr>
<th>Condition</th>
<th>Medications and Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front-line treatment of MM</td>
<td>Blenrep (belantamab mafodotin-blmf), Empliciti (elotuzumab), Ninlaro (ixazomib), and Sarclisa (isatuximab-irfc) are being studied in the front-line multiple myeloma setting. However, the evidence is considered preliminary.</td>
</tr>
<tr>
<td>Myelofibrosis</td>
<td>There are several small, published studies that evaluate the use of Pomalyst (pomalidomide) in patients with myelofibrosis. Several other medications for MM are also being studied. The evidence is considered insufficient at this time.</td>
</tr>
<tr>
<td>Smoldering multiple myeloma</td>
<td>There are several ongoing studies to evaluate various MM therapies [Kyprolis (carfilzomib), Darzalex (daratumumab), Darzalex Faspro (daratumumab and hyaluronidase-fihj), Empliciti (elotuzumab), Ninlaro (ixazomib), and Sarclisa (isatuximab-irfc)] in smoldering plasma cell myeloma. The evidence is considered insufficient at this time.</td>
</tr>
<tr>
<td>Systemic light chain amyloidosis (AL), in the absence of multiple myeloma</td>
<td>Pomalyst (pomalidomide) in combination with dexamethasone is one of many potential treatment regimens listed in the NCCN Systemic Light Chain Amyloidosis guidelines; however, the guidelines state that optimal therapy for systemic light chain amyloidosis remains unknown and treatment in the context of a clinical trial is strongly encouraged when possible. Other listed treatment options include, but are not limited to, cyclophosphamide/thalidomide/dexamethasone, dexamethasone/alpha-interferon, oral melphalan/dexamethasone, and thalidomide/dexamethasone. There are several ongoing studies listed in clinicaltrials.gov that are designed to evaluate Sarclisa (isatuximab-irfc) in other disease settings including amyloidosis. There are no results posted to date.</td>
</tr>
<tr>
<td>Waldenström’s macroglobulinemia</td>
<td>There are ongoing trials that are studying Pomalyst (pomalidomide) and Kyprolis (carfilzomib) in Waldenström’s macroglobulinemia. There is no published data supporting the safety and efficacy of Pomalyst (pomalidomide) in these populations.</td>
</tr>
<tr>
<td></td>
<td>There is currently insufficient evidence to support the use of Kyprolis (carfilzomib) in combination with rituximab and dexamethasone for the treatment of Waldenström’s macroglobulinemia. Although Kyprolis (carfilzomib)/rituximab/dexamethasone is listed in NCCN guidelines as a category 2A recommendation, the only information to date consists of a single-center, uncontrolled phase 2 study in 31 patients. Well-designed studies are necessary to establish efficacy and benefit in these populations.</td>
</tr>
<tr>
<td>Solid tumors</td>
<td>There are also several ongoing trials that are studying Pomalyst (pomalidomide) in soft tissue sarcoma. There is no published data supporting the safety and efficacy of Pomalyst (pomalidomide) in these populations.</td>
</tr>
</tbody>
</table>
Cross References

Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620

Chimeric Antigen Receptor (CAR) T-cell Therapies, Medication Policy Manual, Policy No. dru523

Xpovio, selinexor, Medication Policy Manual, Policy No. dru607

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J9037</td>
<td>Injection, belantamab mafodentin-blmf (Blenrep), 0.5 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9047</td>
<td>Injection, carfilzomib (Kyprolis), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9227</td>
<td>Injection, isatuximab-irfc (Sarclisa), 10 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9145</td>
<td>Injection, daratumumab (Darzalex), 10 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9144</td>
<td>Injection, daratumumab, 10 mg and hyaluronidase-fihj (Darzalex Faspro)</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J9176</td>
<td>Injection, elotuzumab (Empliciti), 1 mg</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
References

1. Laubach JP. Multiple myeloma: Clinical features, laboratory manifestations, and diagnoses. In: UpToDate, Rajkumar SV, Connor RF (Eds), UpToDate, Waltham, MA, 2021.


### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>6/17/2022</td>
<td><strong>Effective 9/1/2022:</strong></td>
</tr>
<tr>
<td></td>
<td>- Farydak (panobinostat) was removed from this policy because the manufacturer has ceased marketing of this product in the US.</td>
</tr>
<tr>
<td></td>
<td>- Pepaxto (melphalan flufenamide) removed from policy due to withdrawal from the market.</td>
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<tr>
<td></td>
<td><em>Note: Revisions were made to update to current standard policy language; however, there was no change to the intent of this policy.</em></td>
</tr>
<tr>
<td>10/15/2021</td>
<td>Pepaxto (melphalan flufenamide) changed to investigational for all indications due to a safety signal that indicates numerically higher incidence of death with melphalan flufenamide versus standard of care.</td>
</tr>
<tr>
<td>7/16/2021</td>
<td>New combination policy (effective 10/1/2021):</td>
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<tr>
<td></td>
<td>- The individual Multiple Myeloma policies were combined, with the exception of selinexor (Xpovio, dru607) and idecabtagene vicleucel (Abecma; a newer CAR-T therapy, dru523).</td>
</tr>
<tr>
<td></td>
<td>- Revlimid will no longer require pre-authorization.</td>
</tr>
<tr>
<td></td>
<td>- The newly FDA approved Pepaxto (melphalan flufenamide) added to policy. The use of Pepaxto for multiple myeloma will be considered not medically necessary and therefore not covered due to lack of proven additional benefit versus lower-cost intravenous melphalan HCl.</td>
</tr>
<tr>
<td></td>
<td>- Added coverage criteria for Darzalex (daratumumab), Darzalex Faspro (daratumumab and hyaluronidase-fihj) in systemic light chain amyloidosis, a newly FDA approved indication.</td>
</tr>
<tr>
<td></td>
<td>- Coverage criteria now explicitly list that combination of any two monoclonal antibodies (Darzalex, Empliciti, Sarclisa; per Appendix 1) is not coverable. No change to intent.</td>
</tr>
<tr>
<td></td>
<td>- Investigational Uses were simplified (any use without coverage criteria is “Investigational”).</td>
</tr>
<tr>
<td></td>
<td>- Clarification of quantity limits, for operational consistency.</td>
</tr>
<tr>
<td></td>
<td>- Removed metastatic castration-resistant prostate cancer (for lenalidomide) from the list of ‘Not Medically Necessary’ uses (this indication was also listed under ‘Investigational Uses’).</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Policy No:** dru673

**Topic:** Jemperli, dostarlimab

**Date of Origin:** November 15, 2021

**Committee Approval Date:** October 15, 2021

**Next Review Date:** June 2022

**Effective Date:** November 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Dostarlimab (Jemperli) is an intravenously infused immunotherapy that is used in the treatment of advanced endometrial cancer.
Policy/Criteria

Most contracts require pre-authorization approval of dostarlimab (Jemperli) prior to coverage.

I. **Continuation of therapy (COT):** Dostarlimab (Jemperli) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Dostarlimab (Jemperli) may be considered medically necessary when criteria A through D below are met:

A. A confirmed diagnosis of **endometrial carcinoma,** advanced (not curable with resection).

AND

B. Documentation that the tumor is mismatch repair deficient (dMMR).

AND

C. There has been disease progression following prior treatment with platinum-based chemotherapy regimen.
AND
D. No prior programmed death receptor-1 (PD-1) blocking antibody (PD-1 inhibitor) or programmed death-ligand 1 (PD-L1) blocking antibody therapy (see Appendix 1).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers dostarlimab (Jemperli) coverable only under the medical benefit (as a provider-administered medication).
B. When pre-authorization is approved, dostarlimab (Jemperli) may be approved for up to four, 500-mg infusions in the first 3 months, and then up to nine, 1,000-mg infusions every 12 months thereafter, until disease progression.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Dostarlimab (Jemperli) is considered investigational when used for all other conditions, including but not limited to:
A. Microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR) tumors [unless specified in the sections above].

Position Statement
Summary
- Dostarlimab (Jemperli) is a human programmed death receptor-1 (PD-1) blocking monoclonal antibody (immunotherapy) used in the treatment of specific types of cancers.
- The intent of this policy is to cover dostarlimab (Jemperli) in settings where it has been shown to be safe and effective, as detailed in the coverage criteria, with consideration for other available treatment options.
  * Where there is lack of proven additional benefit and/or lack of demonstrated health outcome (such as overall survival or improved quality of life) relative to alternative therapies, use of dostarlimab (Jemperli) alone or in combination with other therapies is not coverable (“not medically necessary” or “investigational”).
  * It is important to note that the fact that a medication is FDA approved for a specific indication does not, in itself, make the treatment medically reasonable and necessary.
- Dostarlimab (Jemperli) is FDA approved for use in the following conditions; however, the health plan considers these uses to be “investigational” (not covered) as dostarlimab (Jemperli) has not demonstrated any health benefit, based on the currently available evidence:
* MSI-H tumors, other than endometrial carcinoma *(as described in the Clinical Efficacy section below).*

- Many of the clinical indications for immunotherapies (PD-1, PD-L1, and others) have been approved by the FDA and endorsed by clinical guidelines based on surrogate measures such as overall tumor response rate (ORR) and progression-free survival (PFS), which are not proven to accurately predict clinically important outcomes such as improved overall survival or improved quality of life.

- National Comprehensive Cancer Network (NCCN) guidelines recommend dostarlimab (Jemperli) as a potential option in each of the treatment settings listed in the coverage criteria. In general, NCCN recommendations parallel the FDA approved indications.

- The PD-1 and PD-L1 inhibitors have the potential to cause immune-mediated adverse reactions that can result in pneumonitis, colitis, hepatitis, endocrinopathies, and nephritis.

- Dostarlimab (Jemperli) is coverable up to the dose and quantity that is specified in the coverage criteria. It is administered until disease progression or unacceptable toxicity.

- Optimal sequencing of chemotherapy and immunotherapy in many cancers is unknown or the data is evolving. At this time, sequential use of immunotherapies is not supported by current evidence. Specifically, there is no evidence to support the sequential use of different PD-1 or PD-L1 inhibitors once there is disease progression on prior PD-1 or PD-L1 inhibitor therapy. Therefore, the use of sequential courses of PD-1/PD-L1 immunotherapy is not coverable.

- There are ongoing studies using dostarlimab (Jemperli) in a variety of other cancers. However, although initial evidence may be promising, the potential for clinical benefit in these conditions is still being investigated.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

**Clinical Efficacy**

**ENDOMETRIAL CANCER (EC)**

- **Disease Background** [1]

  * Endometrial cancer (EC) is the most commonly occurring gynecologic cancer in the U.S. Most cases (75%) are diagnosed at an early stage and can be cured with surgery. However, approximately 25% are diagnosed in advanced stages.

  * For advanced disease, first-line therapy with surgery and platinum-containing chemotherapy (standard of care) results in overall survival ranging between 13 and 29 months with tumor response rates of 40 to 62%.

  * Upon disease progression in the advanced disease setting, tumor response rates are generally in the 7 to 14% range with single-agent chemotherapy.
* It is estimated that approximately 25% to 30% of endometrial tumors may have a high frequency of somatic mutations which are attributable to deficiencies in DNA mismatch repair (dMMR) making these tumors a possible target of immunotherapies such as programmed death receptor-1 inhibitors.

- The efficacy of dostarlimab (Jemperli) was evaluated in a small, non-comparative, non-blinded study (GARNET) that evaluated tumor response in patients with advanced EC. The quality of this data is poor due to the lack of randomization, blinding, and comparator. Furthermore, tumor response is not predictive of improvement in any clinically relevant outcome.

* The population evaluated for the EC indication was a specific cohort from a larger study that included patients with many different types of solid tumors. All patients in the EC cohort had mismatch repair deficient (dMMR) EC that could not be cured with surgery (advanced or metastatic disease) and had progressed on or after platinum doublet therapy.

* Tumor response (objective response rate) was 42% with 12.7% complete responses. Seventy three percent of patients had a duration of response of 6 months or longer.

* The following patients were excluded from the study: Patients with endometrial sarcoma and patients who had prior therapy with a PD-1/PD-L1 inhibitor.

- There is no published clinical trial data at this time to support the use of dostarlimab (Jemperli) in the first-line setting for dMMR EC, including for patients unable to use platinum-based chemotherapy. Use of platinum doublet therapy remains the first line standard of care.

- The National Comprehensive Cancer Network (NCCN) Uterine Neoplasms guideline lists dostarlimab (Jemperli) among potential treatment options for progressive/advanced dMMR endometrial carcinoma. [1]

**INVESTIGATIONAL USES**

- Dostarlimab (Jemperli) is actively being studied to determine if there is benefit in treating other types of cancers including non-small cell lung cancer and malignant melanoma. [4] To date, studies are preliminary and ongoing and the risk versus potential for clinical benefit remains under investigation.

- **dMMR Solid Tumors (other than EC)** [5]
  
  * Dostarlimab (Jemperli) is FDA approved as a treatment option for patients with any progressive dMMR solid tumor (“tumor agnostic”) when no satisfactory treatment alternatives are available.

  * The Accelerated approval of dostarlimab (Jemperli) for all dMMR solid tumors was based on preliminary results from a ‘basket trial’ which included patients with any type of solid tumor as long as it was dMMR. The sample size for most tumors was very small with most tumor types being represented in only one or two patients. Additionally, the population did not include all types of solid tumors.
Subjects enrolled in the trial had advanced solid tumors, at least one prior chemotherapy regimen, and no acceptable treatment alternatives.

Although reported tumor response rates appear promising, it is not known if dostarlimab (Jemperli) improves tumor response in all dMMR solid tumors, or positively impacts any clinically relevant outcome. Confirmatory studies are necessary to establish clinical benefit. Therefore, the use of dostarlimab (Jemperli) for dMMR tumors (other than EC) is considered investigational.

**Dosing**
- Initial dosing of dostarlimab (Jemperli) is 500 mg IV every 3 weeks for four doses, followed by 1000 mg IV every 6 weeks until disease progression.

**Safety**
- Package labeling warns of the potential for immune-mediated adverse effects and infusion-related reactions.
- The overall safety profile of dostarlimab (Jemperli) appears similar to other PD-1 inhibitors.

### Appendix 1: FDA-approved PD-1 and PD-L1 blocking monoclonal antibody therapies

**Programmed death receptor-1 (PD-1) inhibitors**
- cemiplimab-rwlc (Libtayo)
- dostarlimab (Jemperli)
- nivolumab (Opdivo)
- pembrolizumab (Keytruda)

**Programmed death-ligand 1 (PD-L1) inhibitor**
- atezolizumab (Tecentriq)
- avelumab (Bavencio)
- durvalumab (Imfinzi)

*Or as listed on the FDA.gov website.

### Cross References

- Bavencio, avelumab, Medication Policy Manual, Policy No. dru499
- Imfinzi, durvalumab, Medication Policy Manual, Policy No. dru500
- Libtayo, cemiplimab-rwlc, Medication Policy Manual, Policy No. dru565
- Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367
- Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390
- Tecentriq, atezolizumab, Medication Policy Manual No. dru463
References


Revision History

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<th>Revision Date</th>
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<tr>
<td>10/15/2021</td>
<td>New policy (effective 11/15/2021).</td>
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<tr>
<td></td>
<td>- Limits coverage to patients with progressive/advanced dMMR endometrial cancer after there has been progression on standard of care front-line cytotoxic chemotherapy.</td>
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<td></td>
<td>- Added use in other dMMR solid tumors (a new indication since the original approval) as investigational because clinical benefit in this expanded, tumor agnostic setting has not been established.</td>
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<tr>
<td></td>
<td>- Sequential use of PD-1/PD-L1 inhibitor therapies has not been studied or shown to be effective and is therefore not coverable.</td>
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</table>

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Medication Policy Manual

Policy No: dru675

Topic: Zynlonta, loncastuximab tesirine

Date of Origin: November 15, 2021

Committee Approval Date: October 15, 2021

Next Review Date: March 2022

Effective Date: November 15, 2021

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Loncastuximab tesirine (Zynlonta) is an antibody-drug conjugate that binds to the CD19 antigen on B-lymphocytes and on several B-cell cancers. It is used in the treatment of relapsed or refractory large B-cell lymphoma where disease has progressed after at least two prior therapies.
Policy/Criteria

Most contracts require pre-authorization approval of loncastuximab tesirine (Zynlonta) prior to coverage.

I. Continuation of therapy (COT): Loncastuximab tesirine (Zynlonta) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

II. New starts (treatment-naïve patients): Loncastuximab tesirine (Zynlonta) may be considered medically necessary when criteria A through D below are met.

A. A diagnosis of one of the following types of relapsed or refractory large B-cell lymphoma:
   1. Diffuse large B-cell lymphoma, not otherwise specified (DLBCL, NOS).
   2. DLBCL arising from low-grade lymphoma.
   3. High-grade B-cell lymphoma.
   AND
   B. There was disease progression on or after at least two prior systemic lymphoma therapies.
   AND
   C. Loncastuximab tesirine (Zynlonta) will be used as monotherapy.
AND
D. There has been no prior use of loncastuximab tesirine (Zynlonta).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers loncastuximab tesirine (Zynlonta) coverable only under the medical benefit (as a provider-administered medication).
B. When pre-authorization is approved, loncastuximab tesirine (Zynlonta) may be authorized as follows:
1. **Initial two cycles:** Doses up to 150 mcg/kg for up to two infusions in six weeks.
2. **Subsequent cycles:** Doses up to 75 mcg/kg for up to one infusion every three weeks until disease progression.
C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement, relative to baseline symptoms.

IV. Loncastuximab tesirine (Zynlonta) is considered investigational when used for all other conditions, unless otherwise specified in the coverage criteria above.

Position Statement

*Summary*
- Loncastuximab tesirine (Zynlonta) is a CD19-directed antibody-drug conjugate approved for use in patients with relapsed or refractory (R/R) large B-cell lymphoma, including diffuse large B-cell lymphoma not otherwise specified (DLBCL NOS), DLBCL arising from low-grade lymphoma, and high-grade B-cell lymphoma, after two or more lines of systemic therapy.
- The intent of this policy is to allow coverage of loncastuximab tesirine (Zynlonta) in the setting described above (in the coverage criteria), where it has been evaluated for efficacy, up to the dose shown to be safe in clinical trials. The FDA approval was based on low-quality data from a single, small, non-comparative, non-blinded study that evaluated an endpoint that has not been proven to predict clinical benefit.
- Loncastuximab tesirine (Zynlonta) was evaluated in patients with relapsed or refractory DLBCL, NOS. The population included patients with transformed disease, as well as a small population of patients with high-grade lymphoma. All patients enrolled in the study had at least two prior systemic therapies for their lymphoma.
- The efficacy of loncastuximab tesirine (Zynlonta) relative to other salvage therapies used for DLBCL is not known as head-to-head studies have not been conducted.
Repeat use of loncastuximab tesirine (Zynlonta) after disease progression has not been studied and is considered investigational. Based on its mechanism of action, there is the potential that it might impact the efficacy of subsequent therapies that bind to CD19, such as CAR T-cell therapies. Further study is warranted.

The National Comprehensive Cancer Network (NCCN) B-cell lymphomas guideline lists loncastuximab tesirine (Zynlonta) among options for DLBCL that has progressed on or after at least two prior therapies.

Loncastuximab tesirine (Zynlonta) is given as a 30-minute infusion in a dose of 150 mcg/kg IV every three weeks for two cycles. The dose is then decreased to 75 mcg/kg IV every three weeks until disease progression.

The safety and effectiveness of loncastuximab tesirine (Zynlonta) in conditions other than advanced DLBCL have not been established.

Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy [1,2]

- The efficacy of loncastuximab tesirine (Zynlonta) was evaluated in a small, non-comparative, non-blinded study that evaluated tumor response as an endpoint. The quality of this data is poor due to the lack of randomization, blinding, and comparator. Furthermore, tumor response is not predictive of improvement in any clinically relevant outcome (e.g., improved survival or quality of life).
  * The study evaluated patients with relapsed or refractory diffuse large B-cell lymphoma (DLBCL) whose disease had progressed on or after at least two prior multi-agent systemic treatment regimens.
  * The majority of the population (127/145; 88%) had a diagnosis of DLBCL, not otherwise specified (NOS). There was also a small population (11/145; 8%) of patients in the trial with high-grade B-cell lymphoma. Twenty percent of the population had transformed DLBCL.
  * One percent of the study population had a prior allogeneic stem cell transplant (SCT), 14% of the population had a prior autologous SCT, and 9% of the population had prior CAR T-cell therapy.
  * Study exclusions:
    o Patients with CNS lymphoma.
    o Patients with bulky disease (tumors ≥ 10 cm) were excluded in a protocol amendment after it was found they had a poor response to this therapy.
- It is not known how the efficacy of loncastuximab tesirine (Zynlonta) compares with any other therapy for DLBCL as no head-to-head studies have been conducted.
The National Comprehensive Cancer Network (NCCN) B-cell lymphomas guideline lists loncastuximab tesirine (Zynlonta) among potential treatment options for relapsed or refractory DLBCL when disease has progressed on or after at least two prior systemic therapies. [3]

**Investigational Uses** [4]
- There are currently no published clinical trials evaluating the safety or efficacy of loncastuximab tesirine (Zynlonta) for the treatment of conditions other than the large B-cell lymphoma subtypes listed in the coverage criteria.
- There are future studies planned that will evaluate the use of loncastuximab tesirine (Zynlonta) in other B-cell lymphomas and in specific non-Hodgkin lymphomas.

**Safety and Tolerability** [5]
- Approximately one-quarter of the patients enrolled in the loncastuximab tesirine (Zynlonta) clinical trial discontinued therapy due to an adverse event (AE). Fifty-one percent of patients required an interruption in treatment due to an AE.
- There is a theoretical potential that loncastuximab tesirine (Zynlonta), as well as other CD19-directed lymphoma therapies, might negatively impact the efficacy of subsequent anti-CD19 CAR T-cell therapies.

### Cross References

| Chimeric Antigen Receptor (CAR) T-cell Therapies: (Abecma) idecabtagene vicleucel, (Breyanzi) lisocabtagene maraleucel, ciltacabtagene autoleucel, (Kymriah) tisagenlecleucel, (Yescarta) axicabtagene ciloleucel, (Tecartus) brexucabtagene autoleucel; Medication Policy Manual, Policy No. dru523 |
| Monjuvi, tafasitamab, Medication Policy Manual, Policy No. dru652 |
| Polivy, polatuzumab vedotin, Medication Policy Manual, Policy No. dru600 |
| Xpovio, selinexor, Medication Policy Manual, Policy No. dru607 |
References


Revision History

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Medication Policy Manual

Policy No: dru677

Topic: Interleukin-1 Antagonists

- Arcalyst, rilonacept
- Ilaris, canakinumab
- Kineret, anakinra

Date of Origin: October 1, 2021

Committee Approval Date: July 16, 2021

Next Review Date: April 2022

Effective Date: October 1, 2021

IMPORTANT REMINDER

This Medical Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medical policy is to provide a guide to coverage. Medical Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Rilonacept (Arcalyst), canakinumab (Ilaris), and anakinra (Kineret) are medications that block the activity of interleukin-1 (IL-1), a protein involved in inflammation.
Policy/Criteria

I. **Continuation of therapy (COT):** Anakinra (Kineret) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

II. **Continuation of therapy (COT):** Full policy criteria listed below apply for patients established on rilonacept (Arcalyst) and canakinumab (Ilaris).

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

III. **New starts (treatment-naive patients):** Most contracts require pre-authorization approval of interleukin-1 blockers prior to coverage. Interleukin-1 blockers may be considered medically necessary in patients when one of criteria A through E below are met.

   A. **Recurrent Pericarditis (RP)**

      Rilonacept (Arcalyst) and anakinra (Kineret) may be considered medically necessary for RP when there is clinical documentation (including, but not limited to chart notes) that criteria 1 through 3 below are met:
1. A diagnosis of RP established by or in conjunction with a specialist in cardiology, rheumatology, or immunology.

AND

2. The patient has had an episode of recurrent pericarditis while currently taking colchicine. If colchicine is contraindicated or not tolerated, low-dose corticosteroids must have been ineffective, contraindicated, or not tolerated.

AND

3. For rilonacept (Arcalyst) only: A history of recurrent pericarditis despite treatment with the following, unless not tolerated or contraindicated.
   A. Anakinra (Kineret)

B. Deficiency of Interleukin-1 Receptor Antagonist (DIRA)
Rilonacept (Arcalyst) and anakinra (Kineret) may be considered medically necessary for DIRA when there is clinical documentation (including, but not limited to chart notes) that criterion 1 below is met:

1. A diagnosis of DIRA established by or in conjunction with a specialist in rheumatology, or immunology.

C. Rheumatoid Arthritis (RA)
Anakinra (Kineret) may be considered medically necessary for RA when criteria 1 through 3 below are met:

1. A diagnosis of RA when established by or in consultation with a specialist in rheumatology.

AND

2. Treatment with a conventional synthetic DMARD for at least 6 to 12 weeks was ineffective, not tolerated, or all conventional synthetic DMARDs are contraindicated. Conventional synthetic DMARDs for RA include: hydroxychloroquine, leflunomide, methotrexate, and sulfasalazine.

AND

3. There is clinical documentation that treatment with at least two preferred self-administered biologic therapies was not effective after at least a 12-week treatment course unless all were not tolerated or are contraindicated.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
D. **Still’s Disease - Systemic Juvenile Idiopathic Arthritis (SJIA) and Adult-Onset Still’s Disease (AOSD)**

Canakinumab (Ilaris) and anakinra (Kineret) may be considered medically necessary for Still’s Disease (SJIA and AOSD) when there is clinical documentation (including, but not limited to chart notes) that criteria 1 through 4 below are met:

1. A diagnosis of **Still’s Disease** (SJIA; AOSD) when established by or in consultation with a specialist in rheumatology.

   **AND**

2. There is disease activity greater than 6 weeks.

   **AND**

3. One of the following are met:
   
   a. Treatment with at least one oral conventional agent was not effective after 12 weeks, not tolerated, or is contraindicated. Conventional agents for the treatment of SJIA include: azathioprine, cyclosporine, leflunomide, methotrexate, systemic corticosteroids, or tacrolimus.
   
   b. Treatment with at least one NSAID (e.g., ibuprofen, celecoxib) was not effective after 4 weeks, not tolerated, or all are contraindicated.

   **AND**

4. For **canakinumab (Ilaris)** only: Prior treatment with both tocilizumab (Actemra) and anakinra (Kineret) has been ineffective, not tolerated or is contraindicated.

E. **Periodic fever syndromes**

Rilonacept (Arcalyst), canakinumab (Ilaris), and anakinra (Kineret) may be considered medically necessary for periodic fever syndromes when there is clinical documentation (including, but not limited to chart notes) that one of criteria 1 through 4 below is met:

1. A diagnosis of **cryopyrin associated periodic syndromes** (CAPS) and criteria a, b, and c below are met:
a. There is laboratory evidence of a genetic mutation in the Cold-Induced Auto-inflammatory Syndrome 1 (CIAS1 – sometimes referred to as the NLRP3).

AND

b. There is clinical documentation of at least one of i through iii below are met:

i. **Neonatal onset multisystem inflammatory disease (NOMID)** – Urticaria-like rash, central nervous system involvement [e.g., papilledema, cerebrospinal fluid (CSF) pleocytosis, or sensorineural hearing loss], elevated C-reactive protein, or epiphyseal and/or patellar overgrowth on radiographs.

OR

ii. **Familial Cold Auto-Inflammatory Syndrome (FCAS)** – Recurrent intermittent episodes of fever and rash following cold exposure that primarily followed natural, artificial (e.g., air conditioning), or both types of generalized cold exposure.

OR

iii. **Muckle-Wells Syndrome (MWS)** – Syndrome of chronic fever and rash that may wax and wane in intensity; sometimes exacerbated by generalized cold exposure. This syndrome may be associated with deafness or amyloidosis

AND

c. For canakinumab (Ilaris) and rilonacept (Arcalyst) only:

Documented significant functional impairment as a result of CAPS, leading to limitations in activities of daily living (ADLs).

OR

2. **Familial Mediterranean fever** (FMF), in adult and pediatric patients and treatment with colchicine was ineffective, not tolerated, or is contraindicated.

OR

3. **Tumor necrosis factor receptor-1 associated periodic syndrome** (TRAPS) in adults and pediatric patients.

OR

4. **Hyperimmunoglobulin D syndrome** (HIDS)/mevalonate kinase deficiency (MKD) in adults and pediatric patients.

IV. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers rilonacept (Arcalyst) and anakinra (Kineret) to be self-administered medications.
B. Regence Pharmacy Services considers canakinumab (Ilaris) to be a provider-administered medication

C. When pre-authorization is approved, interleukin-1 antagonists will be authorized in quantities as follows:

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<tr>
<td>Anakinra (Kineret)</td>
<td>1. For RA, RP, SJIA, and AOSD: Up to 28 doses (twenty-eight 100 mg syringes) every 4 weeks.</td>
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<td>2. For CAPS and DIRA: A quantity sufficient for up to 28 doses every four weeks based on a recommended maximum dose of 8 mg/kg per day.</td>
</tr>
<tr>
<td>Canakinumab (Ilaris)</td>
<td>1. For CAPS: up to 1 vial (150 mg) every 8 weeks (i.e., 7 vials in a 12-month period).</td>
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<td>2. For FMF, TRAPS, HIDS/MKD: up to 2 vials (300 mg) every 4 weeks (i.e., 26 vials in a 12-month period).</td>
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<tr>
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<td>3. For SJIA and AOSD: up to 2 vials (300 mg) every 4 weeks (i.e. 26 vials in a 12-month period).</td>
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<tr>
<td>Rilonacept (Arcalyst)</td>
<td>1. For Periodic Fever Syndromes, and RP:</td>
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<td>a. Initial: up to 25 vials containing 220 mg each in the first 24-week period (based on a loading dose of 320 mg once followed by 160 mg weekly).</td>
</tr>
<tr>
<td></td>
<td>b. Continued Authorization – Up to four 220 mg vials per 28 days (based on a dose of 160 mg every week).</td>
</tr>
<tr>
<td></td>
<td>2. For DIRA: Up to 320 mg (2 vials) per week.</td>
</tr>
</tbody>
</table>

D. Authorization limits:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anakinra (Kineret)</td>
<td>Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective.</td>
</tr>
<tr>
<td>Canakinumab (Ilaris)</td>
<td>Initial authorization: shall be reviewed at 6 months.</td>
</tr>
<tr>
<td></td>
<td>Continued authorization: shall be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met and that the medication is providing clinical benefit, such as disease stability or improvement of associated symptoms.</td>
</tr>
<tr>
<td>Rilonacept (Arcalyst)</td>
<td>1. For Periodic Fever Syndromes:</td>
</tr>
<tr>
<td></td>
<td>a. Initial authorization: shall be reviewed at 6 months.</td>
</tr>
</tbody>
</table>
V. Interleukin-1 antagonists are considered investigational when used for all other conditions including, but not limited to:

A. Atherosclerotic coronary artery disease (ASCAD)
B. Bursitis
C. Chronic Kidney Disease (CKD)
D. Diabetes Mellitus Type 1 (DM)
E. Gout

Position Statement

Summary

- Anakinra (Kineret), canakinumab (Ilaris), and rilonacept (Arcalyst) are interleukin-1 antagonists used in the treatment of several inflammatory conditions.
- The intent of this policy is to cover interleukin-1 (IL-1) antagonists for the indications and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.
- There have been no head-to-head trials comparing the efficacy of anakinra (Kineret), rilonacept (Arcalyst), or canakinumab (Ilaris) against each other or any other medication in the management of any condition.
- RP: Pericarditis is characterized by chest pain associated often with peculiar electrocardiographic changes and may be accompanied by pericardial effusion. Pericarditis is considered recurrent (RP) when there has been a recurrence at least 4-6 weeks after the first episode.

* Nonsteroidal anti-inflammatory drugs (NSAIDs and colchicine are recommended as first-line agents to treat pericarditis and prevent recurrences. EULAR guidelines state the colchicine should be continued for at least 6 months.
Anakinra (Kineret) and rilonacept (Arcalyst) are considered 3rd line options in patients who have had recurrences despite treatment with colchicine. Both have been shown to reduce the risk of recurrence in clinical trials.

For this health plan, anakinra (Kineret) provide the best value among biologic medications used to treat RP.

CAPS: Cryopyrin-associated periodic syndromes (CAPS) are a group of rare genetic diseases affecting approximately 200 to 300 people in the United States, attributed to a specific genetic mutation.[1]

Medications that affect interleukin-1 (IL-1) may be helpful in controlling the symptoms of CAPS, including anakinra (Kineret), rilonacept (Arcalyst), and canakinumab (Ilaris).

Rilonacept (Arcalyst) and canakinumab have FDA marketing approval for CAPS. Because the disease is so rare, it has been difficult to conduct high quality scientific studies.

FMF: The most common periodic syndrome is FMF, which mainly affects people of Eastern Mediterranean ancestry. FMF affects 1 in 250 to 1 in 1,000 individuals in these populations.

FMF is characterized by episodic attacks of fever lasting one to three days and accompanied, in most cases, by abdominal pain, pleurisy, and arthralgias/arthritis.

Initial treatment of FMF is with colchicine. Colchicine is primarily effective as a prophylactic treatment for FMF attacks.

TRAPS is characterized by recurrent fevers over months or years. Other clinical features include focal myalgias, conjunctivitis, and rash. Fever and associated symptoms commonly last at least five days and often continue for more than two weeks. [2]

Fever may respond to use of NSAIDs, and glucocorticoids are required to resolve other clinical manifestations of an attack. Off-label treatment with etanercept for patients with frequent and/or severe recurrences has been reported.

HIDS/MKD is characterized by episodic attacks of fever lasting three to seven days accompanied, in most cases, by chills, cervical lymphadenopathy, abdominal pain, vomiting, and/or diarrhea.[3]

NSAIDs and glucocorticoids are used to treat the fever and accompanying symptoms. Case reports of treatment with etanercept, anakinra, and tocilizumab have been reported in the literature.

DIRA is a rare inflammatory, recessive disorder caused by loss of function mutations in the IL1RN gene. It causes osteomyelitis with periostitis and pustulosis.

SJIA: Canakinumab (Ilaris) received an indication for the treatment of systemic juvenile idiopathic arthritis (SJIA) in May 2013. It has been shown to improve signs and symptoms of SJIA, as measured by the adapted JIA American College of Rheumatology (ACR) 30 response.
The majority of patients included in clinical trials of canakinumab (Ilaris) for SJIA were receiving methotrexate and prednisone at the time of study enrollment, and > 50% of patients had prior treatment with a biologic (e.g., anakinra, tocilizumab, anti-TNF agents or other biologics).

Systemic JIA is a subtype of juvenile idiopathic arthritis that is associated with systemic inflammation. [4]

Systemic JIA is defined as arthritis in at least one joint for at least 6 weeks in patients less than 16 years of age that is accompanied for other systemic manifestation such as erythematous rash, lymphadenopathy, hepatomegaly or splenomegaly, and serositis.

It is unknown how the efficacy of canakinumab (Ilaris) compares to other treatments for SJIA.

- Tocilizumab (Actemra) is an intravenously infused biologic medication that is also FDA-approved for the treatment of SJIA. It has also been shown to improve ACR 30 response in patients with SJIA.
- Anakinra (Kineret) is another subcutaneously administered biologic medication used for the treatment of SJIA. It has also been shown to improve ACR 30 response.

Consensus guidelines from the Childhood Arthritis Rheumatology and Research Alliance endorse the use of both tocilizumab (Actemra) and anakinra (Kineret) in the management of SJIA.

For our members, tocilizumab (Actemra) and anakinra (Kineret) provide the best value among biologic medications used to treat SJIA.

There is currently no high-quality evidence that rilonacept (Arcalyst) or canakinumab are efficacious in patients who do not exhibit the NLRP3 (CIAS1) genetic mutation.

Rilonacept (Arcalyst) provides a modest improvement in the symptoms of patients with CAPS, a rare genetic disease affecting about 200 to 300 people in the United States.

Patients treated with rilonacept (Arcalyst) experienced reduction of mean symptom score of about 2 points (on a 10-point scale) after treatment for 24 weeks.

Mild to moderate injection site reactions lasting approximately one day are common after an injection of rilonacept (Arcalyst).

Clinical Efficacy

Recurrent Pericarditis (RP)

Efficacy data for rilonacept (Arcalyst) in recurrent pericarditis (RP) is based on one phase 3 randomized withdrawal study (RHAPSODY). [5 6]

In the RHAPSODY study, patients with RP were initially assigned to receive rilonacept for 16 weeks. Patients who had a response during the initial period were then randomized to continue rilonacept or switch to placebo.

The primary endpoint was time to first pericarditis recurrence. This was an event driven study, and the study was stopped when 22 events occurred.
Results showed that, rilonacept significantly reduced the recurrence of pericarditis compared to patients who were randomized to placebo.

Efficacy for anakinra is based on one phase 2 randomized-withdrawal trial (AIRTRIP).

In the AIRTRIP trial, anakinra was administered at 2 mg/kg per day (up to 100 mg), for 2 months to patients with an episode of pericarditis. Patients who responded to treatment were then randomized to continue anakinra (n = 11) or switch to placebo (n = 10) for 6 months or until an episode of RP occurred.

Results showed that RP occurred in 9 of 10 patients assigned to placebo and 2 of 11 patients assigned to anakinra, a significant difference.\(^7\)

While the evidence is of lower quality due to the small nature of the study, anakinra does appear to be an effective option for the management of RP.

2015 European Society of Cardiology (ESC) Guidelines for pericarditis recommend aspirin or NSAIDs in combination with colchicine are used as the initial treatment for recurrent pericarditis. Each treatment is then maintained for weeks to months.\(^8\)

Low-dose corticosteroids are recommended as second-line agent in patients who cannot tolerate or have a contraindication to colchicine.

IVIG, anakinra, or azathioprine may be considered in cases of proven infection negative, corticosteroid-dependent, RP not responsive to colchicine. Guidelines have not been updated to include rilonacept.

After obtaining a complete response, tapering should be done with a single class of drug at a time before colchicine is gradually discontinued.

**Rheumatoid Arthritis (RA)**

Several targeted DMARDs, including anakinra, have been shown to be effective in the treatment of RA.

The efficacy of these targeted DMARDs in the treatment of RA is similar. Guidelines do not recommend one specific targeted DMARD over another. The initial choice of therapy is a TNF inhibitor, a non-TNF biologic, or tofacitinib.\(^9\)

Because of similar efficacy among the studied targeted DMARDs, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria.

**CAPS**

CAPS are a group of rare genetic diseases affecting approximately 200 to 300 people in the United States and are attributed to a specific genetic mutation.\(^2\)

Three types of CAPS affect the majority of patients: \(^2\)

* Neonatal-Onset Multisystem Inflammatory Disease (NOMID) – Urticaria-like rash, CNS involvement [papilledema, cerebrospinal fluid (CSF) pleocytosis, or sensorineural hearing loss], elevated C-reactive protein (CRP), or epiphyseal and/or patellar overgrowth on radiographs.

* Familial Cold Auto-Inflammatory Syndrome (FCAS) – Recurrent intermittent episodes of fever and rash that primarily followed natural, artificial (e.g., air conditioning), or both types of generalized cold exposure.
* Muckle-Wells Syndrome (MWS) – Syndrome of chronic fever and rash that may wax and wane in intensity and is sometimes exacerbated by generalized cold exposure. This syndrome may be associated with deafness or amyloidosis.

- Medications that affect interleukin-1 (IL-1) may be helpful in controlling the symptoms of CAPS. However, due to the rarity of these conditions, it is difficult to conduct high-quality scientific studies.

- There have been no head-to-head trials comparing the efficacy of anakinra (Kineret), rilonacept (Arcalyst), or canakinumab (Ilaris) against each other or any other medication in the management of CAPS.

- The efficacy of anakinra (Kineret) was evaluated in a prospective, long-term, open-label and uncontrolled study in 43 patients with NOMID aged 0.7 to 46 years who were treated for up to 60 months.

* Treatment with anakinra (Kineret) resulted in improvements in all individual disease symptoms measured by a disease-specific Diary Symptom Sum Score (DSSS), as well as in the serum markers of inflammation.

* For 11 patients who went through a withdrawal phase, disease symptoms and serum markers of inflammation worsened after withdrawal and promptly responded to reinstitution of anakinra (Kineret) therapy.

- One randomized, crossover study compared rilonacept (Arcalyst) to placebo in 47 patients. All patients were tested and found to be positive for the CIAS1 mutation. Patients initially received 6 weeks of treatment with either rilonacept (Arcalyst) or placebo then were crossed over to the other treatment in a blinded manner. [10-12]

* At 6 weeks, the symptom scores of patients assigned to rilonacept (Arcalyst) had improved by 2.3 points (on a 10-point scale) relative to patients receiving placebo.

* This modest benefit was sustained for up to 24 weeks of treatment during the clinical trial. A similar benefit (compared to baseline) was seen when patients continued treatment through an open-label extension up to 48 weeks.

* Subjects withdrawn from rilonacept (Arcalyst) following Part A of the trial had a return of symptoms, while those continuing on rilonacept (Arcalyst) maintained their response to treatment.

* Improvement in laboratory test results for inflammatory markers of disease (serum amyloid A and C-reactive protein) were supportive of clinical improvement seen with rilonacept (Arcalyst). These inflammatory markers are not specific to CAPS (i.e., not diagnostic), but might be useful in monitoring clinical response to treatment.

- One clinical trial evaluated the effectiveness of canakinumab (Ilaris) in 35 patients with CAPS.

* In phase 1, all patients received a single dose of canakinumab. Those who remained relapse-free after 8 weeks and elected to continue (n=31) were then randomized to receive canakinumab (Ilaris) 150 mg SC ever 8 weeks (n=15) or placebo (n=16) for up to 24 weeks.

* Any patient who relapsed or completed 24 weeks of therapy was then enrolled in an open-label, follow-on trial for at least two doses and up to 52 weeks of therapy.

* Of the 35 patients initially enrolled, 34 remained relapse-free for 8 weeks.
* During the double-blinded, randomized phase, all subjects in the canakinumab (Ilaris) group remained relapse-free versus 29% of subjects in placebo group at 24 weeks (100% vs 29%, p < 0.001, NNT = 2).

* Changes in laboratory markers of inflammatory disease (CRP and SAA) were supportive of clinical finding.

**FMF, TRAPS, HIDS/MKD**

- The efficacy of canakinumab (Ilaris) for the treatment of FMF, TRAPS, HIDS/MKD was demonstrated in a 4-part study consisting of three separate disease cohorts (FMF, TRAPS, HIDS/MKD). [13]

* Patients in each cohort entered a 12-week screening period (part 1) during which they were evaluated for the onset of disease flare. Patients aged 2 to 76 years were then randomized at flare onset into a 16-week double-blind, placebo-controlled treatment period (part 2) where they received either 150 mg canakinumab (2 mg/kg for patients weighing less than or equal to 40 kg) subcutaneously or placebo every 4 weeks. Additional doses of canakinumab were permitted for patients whose disease flare did not resolve, or who had persistent disease activity. Part 3 and part 4 of the study are ongoing.

* For the primary efficacy endpoint, canakinumab was more effective than placebo in the proportion of patients with FMF, TRAPS, and HIDS/MKD who resolved their disease flare at day 15 and had no new flare over the 16 weeks of treatment from the time of resolution of the index flare.

**SJIA**

- Several targeted DMARDs, including anakinra (Kineret) and canakinumab (Ilaris) have been shown to be effective or are recommended by clinical practice guidelines in the treatment of SJIA.

- Due to lack of high-quality data, the comparative efficacy for these agents in the treatment of SJIA is uncertain. The efficacy of these targeted DMARDs (as listed above) in the treatment of SJIA is similar. However, there is a significant difference in the cost between these treatment options. Therefore, the costlier treatment options are coverable only when the less costly options are ineffective.

- Rilonacept (Arcalyst) was studied in 24 systemic juvenile idiopathic arthritis (SJIA) patients in a double-blind, 4-week trial followed by an open-label phase for 23 months in 23 of these patients. Patients received 2.2 mg/kg or 4.4 mg/kg of rilonacept (Arcalyst). Improvements in clinical and laboratory measures of articular and systemic manifestations of SJIA were achieved in > 50% of rilonacept (Arcalyst)-treated patients over two years. Larger, well-designed trials are needed to establish the efficacy of rilonacept (Arcalyst) in SJIA. [14]

**Deficiency of Interleukin-1 Receptor Antagonist (DIRA)**

- Deficiency of IL-1 receptor antagonist (DIRA) is a rare autoinflammatory disease that presents with life-threatening systemic inflammation and osteomyelitis. Prevalence is not known due to the rarity of the condition. Mortality during early infancy is approximately 30%. [15]
- Due to the rarity of the condition, studies are limited to small, single-arm, open-label studies.
  * Anakinra was evaluated in a long-term natural history study that included nine patients for up to 10 years. After dose adjustment to control active inflammation, all nine patients were able to achieve inflammatory remission.[16]
  * Efficacy of rilonacept for DIRA was based on a two-year, open-label study in 6 patients. After receiving rilonacept, all six patients remained in inflammatory remission for the duration of the 2-year study.[17]

Other Uses
- Gout and gouty arthritis: A Cochrane systematic review evaluated interleukin-1 inhibitors for the treatment of acute gout and concluded that there is low-quality evidence indicated that compared with maximum doses of indomethacin (50 mg three times a day), 320 mg of rilonacept (Arcalyst) may provide less pain relief with a similar rate of adverse events. [18] In addition, there is moderate-quality evidence that canakinumab (Ilaris) 150 mg probably results in better pain relief, joint swelling and participant-assessed global assessment of treatment response in people with an acute gout flare compared to a sub-optimal dose of intramuscular triamcinolone.[18] However, canakinumab (Ilaris) is also probably associated with an increased risk of adverse events. There are no studies comparing canakinumab with more commonly used first-line therapies for acute gout flares such as NSAIDs or colchicine. Clinical guidelines have noted that triamcinolone is considered a weak comparator and there are numerous other treatments available. [19] Rilonacept (Arcalyst) was studied in a 16-week, randomized, placebo-controlled study of 241 adult patients with chronic active gouty arthritis who were initiating uric acid-lowering therapy with allopurinol. In addition to allopurinol daily, patients received 16 once-weekly injections of rilonacept (Arcalyst) (80 mg or 160 mg) or placebo. There was a reported improvement in the number of gout flares per patient through week 16 (primary endpoint) with rilonacept (Arcalyst) vs placebo (P < 0.001). [20] Bursitis: Rilonacept (Arcalyst) versus triamcinolone was studied for the treatment of subacromial bursitis in a randomized, non-inferiority, unblinded study. While both treatments improved QuickDASH score, a measure of physical function and pain, triamcinolone offered greater improvement. [21]
- CKD: Rilonacept was studied in 39 patients with stage 3 - 4 CKD completed a randomized trial receiving either the IL-1 trap rilonacept (160 mg/week) or placebo for 12 weeks. The following CKD-MBD markers were assessed in serum before and after the intervention: calcium, phosphorus, 25-hydroxyvitamin D, 1,25-dihydroxyvitamin D, 24,25-dihydroxyvitamin D, intact parathyroid hormone (iPTH), and fibroblast growth factor 23 (FGF23). Results of the trial showed that 12 weeks of IL-1 inhibition did not improve markers of CKD-MBD or physical function.[22]
- MI: Canakinumab (Ilaris) has studied been in patients with previous myocardial infarction (MI) and a high blood level of C-reactive protein.
  * In a phase 3, randomized, placebo-controlled trial, treatment with canakinumab (Ilaris) 150 mg and 300 reduced the primary composite endpoint of nonfatal myocardial infarction, nonfatal stroke, or cardiovascular death.
  * While promising, additional information is needed to clarify the risk-benefit
profile of the drug as the magnitude of benefit is relatively small and canakinumab (Ilaris) had a significantly higher risk of serious infection and sepsis compared to placebo. [24]

- **PAD:** One small study evaluated canakinumab (Ilaris) for the treatment of symptomatic peripheral artery disease (PAD). Results showed small improvement in walking distance, however larger, longer-term studies are needed to determine risk-benefit profile and impact on quality of life.[25]

- **Other Uses:**
  * Canakinumab (Ilaris) is also currently being studied in multiple conditions including diabetes mellitus and rheumatoid arthritis. Results from these studies are not yet available.
  * Rilonacept (Arcalyst) is also currently being studied in multiple other conditions including atherosclerotic coronary artery disease, and diabetes mellitus type 1. Results from these studies are not yet available.

### Appendix 1: American College of Rheumatology (ACR) Assessment Components for Improvement in Rheumatoid Arthritis (RA) [29]

- Tender joint count.
- Swollen joint count.
- Patient's assessment of pain.
- Patient's global assessment of disease activity.
- Physician's global assessment of disease activity.
- Patient's assessment of physical function.
- Acute phase reactant measures (erythrocyte sedimentation rate or C-reactive protein levels.)

### Cross References

Drugs for chronic inflammatory diseases, Medication Policy Manual, dru444

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J0638</td>
<td>Injection, canakinumab (Ilaris), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J2793</td>
<td>Injection, rilonacept (Arcalyst), 1 mg</td>
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References


Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>7/16/2021</td>
<td>Effective 10/1/2021:</td>
</tr>
<tr>
<td></td>
<td>• New combination policy replacing individual policies for Arcalyst, Ilaris, and Kineret (dru159, dru186, and dru444).</td>
</tr>
<tr>
<td></td>
<td>• For Arcalyst and Kineret, added coverage criteria for recurrent pericarditis and Deficiency of Interleukin-1 Receptor Antagonist (DIRA), newly FDA approved indications.</td>
</tr>
<tr>
<td></td>
<td>• For Ilaris, and Kineret, added coverage criteria for adult-onset Still’s Disease (AOSD), a newly FDA approved indication.</td>
</tr>
<tr>
<td></td>
<td>• No change to intent for other indications.</td>
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</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

**Policy No:** dru680

**Topic:** Evkeeza, evinacumab

**Date of Origin:** August 15, 2021

**Committee Approval Date:** July 16, 2021

**Next Review Date:** April 2022

**Effective Date:** August 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Evinacumab (Evkeeza) is an angiopeptin-like 3 (ANGPTL3) inhibitor used in the treatment of homozygous familial hypercholesterolemia (HoFH).
Policy/Criteria

Most contracts require pre-authorization approval of evinacumab (Evkeeza) prior to coverage.

I. Continuation of therapy (COT): Evinacumab (Evkeeza) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naive patients): Evinacumab (Evkeeza) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A, B, and C below are met.

A. A diagnosis of homozygous familial hypercholesterolemia (HoFH).

AND

B. Evinacumab (Evkeeza) has been prescribed by or in conjunction with a specialist in cardiology or lipid management and there is clinical documentation of at least one of the following:

1. Genetic confirmation of two mutant alleles at the LDLR, APOB, PCSK9, or LDLRAP1 gene locus.

OR

2. An untreated low-density lipoprotein cholesterol (LDL-C) of > 500 mg/dL (or a treated LDL-C of > 300 mg/dL) with either:

   a. Cutaneous or tendon xanthoma before age 10 years.

   OR

   b. Evidence of heterozygous familial hypercholesterolemia in both parents.
AND
C. Treatment with maximally tolerated statin AND PCSK-9 inhibitor (evolocumab [Repatha], alirocumab [Praluent]) have been ineffective, contraindicated, or not tolerated.

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services does not consider evinacumab (Evkeeza) to be a self-administered medication.

B. When prior authorization is approved, evinacumab (Evkeeza) will be authorized in quantities of up to 15 mg/kg once monthly. For doses exceeding 1200 mg, dose rounding down to the nearest available vial size (within 10% of calculated dose) is required.

C. Initial approval shall be up to 6 months. After initial authorization, evinacumab (Evkeeza) shall be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as improvement of LDL-C from baseline.

IV. Evinacumab (Evkeeza) is considered investigational when used for all other indications, including but not limited to:
A. Other causes of hypercholesterolemia, including those with heterozygous familial hypercholesterolemia (HeFH).
B. Prevention of cardiovascular disease (CVD).

Position Statement
Summary
- The intent of this policy is to limit coverage of evinacumab (Evkeeza) to patients with a confirmed diagnosis of homozygous familial hypercholesterolemia (HoFH), who have tried and failed lower cost therapies as detailed in the coverage criteria.

- The efficacy and safety of evinacumab was evaluated in a phase 3, double-blind, trial that demonstrated a significant decrease in low density lipoprotein cholesterol (LDL-C) when compared to placebo. Most patients in the study were already established on statin medications prior to study entry.

- Treatment guidelines recommend the use of a maximally tolerated high-intensity statin as first-line pharmacotherapy for patients with HoFH, even in patients who are LDL receptor negative, as they have been shown to reduce cardiovascular (CV) and all-cause mortality. [1 2 3] PCSK9 inhibitors are endorsed as add-on therapy for HoFH.[4]

- In addition, statins and PCSK9 inhibitors provide the best value. Evinacumab (Evkeeza) has not been proven to be safer or more effective than statins or PCSK9 inhibitors but is more costly.
HoFH may be diagnosed via clinical criteria, such as baseline LDL values, family history, and physical manifestations of FH, or through genetic testing.

Evinacumab (Evkeeza) may be covered for up to 15 mg/kg every four weeks, the dose studied in clinical trials. The safety and effectiveness of higher doses have not been established. Dose rounding down to the nearest available vial size may be required within 10% of the calculated dose to reduce product waste without sacrificing efficacy. Dose rounding within 10% of a calculated dose is an accepted industry standard and has been adopted in various clinical care areas.[5]

**Background**[6 7]

- HoFH is a very rare type of familial hypercholesterolemia (FH), an autosomal dominant lipid disease, that is characterized by abnormally elevated low density lipoprotein cholesterol (LDL-C) levels and an increased propensity for early onset cardiovascular disease.
- Genetic confirmation of two mutant alleles at the LDLR, APOB, PCSK9, or LDLRAP1 gene locus is confirmative of the presence of HoFH.
- Clinical criteria for FH may be used to guide a clinical diagnosis of HoFH (see Appendices 1 and 2).

**Clinical Efficacy**[8 9]

- The efficacy and safety of evinacumab was evaluated in ELIPSE, a phase 3, double-blind, placebo-controlled trial of patients with genetically or clinically confirmed HoFH on stable lipid-lowering therapy.
  * Patients were randomly assigned to an IV infusion of evinacumab 15 mg/kg or placebo every four weeks.
  * 63% of patients were receiving at least three lipid-modifying drugs at baseline; 94% were on a statin, 77% were on a PCSK9 inhibitor.
  * The between group decrease in LDL-C from baseline to week 24 was 49% (absolute change of -132 mg/dL), in favor of evinacumab (Evkeeza).

**Investigational Uses**

- There are no published clinical trials evaluating the safety or efficacy of evinacumab (Evkeeza) for the treatment of other causes of hypercholesterolemia, including those with heterozygous familial hypercholesterolemia (HeFH) and prevention of cardiovascular disease (CVD).
### Appendix 1: Dutch Lipid Clinic Network criteria[6]

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td><strong>Group 1: family history</strong></td>
<td></td>
</tr>
<tr>
<td>First-degree relative with known premature (less than age 55 for males or 65 for females) coronary heart disease</td>
<td>1</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>First-degree relative with known LDL cholesterol above 95&lt;sup&gt;th&lt;/sup&gt; percentile</td>
<td></td>
</tr>
<tr>
<td>First-degree relative with tendon xanthoma and/or corneal Arcus</td>
<td>2</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Children &lt; 18 years with LDL cholesterol above 95&lt;sup&gt;th&lt;/sup&gt; percentile</td>
<td>2</td>
</tr>
<tr>
<td><strong>Group 2: clinical history</strong></td>
<td></td>
</tr>
<tr>
<td>Premature coronary heart disease</td>
<td>2</td>
</tr>
<tr>
<td>Subject has cerebral or peripheral vascular disease</td>
<td>1</td>
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<tr>
<td><strong>Group 3: physical examination</strong></td>
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</tr>
<tr>
<td>(i) Tendon xanthoma</td>
<td>6</td>
</tr>
<tr>
<td>(ii) Corneal arcus in a person before age 45</td>
<td>4</td>
</tr>
<tr>
<td><strong>Group 4: biochemical results (LDL-C)</strong></td>
<td></td>
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<tr>
<td>&gt;8.5 mmol/L (.325 mg/dL)</td>
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<tr>
<td>5–8.4 mmol/L (251–325 mg/dL)</td>
<td>5</td>
</tr>
<tr>
<td>5.0–6.4 mmol/L (191–250 mg/dL)</td>
<td>3</td>
</tr>
<tr>
<td>4.0–4.9 mmol/L (155–190 mg/dL)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Group 5: molecular genetic testing (DNA analysis)</strong></td>
<td></td>
</tr>
<tr>
<td>(i) Causative mutation shown in the LDLR, APOB, or PCSK9 genes</td>
<td>8</td>
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**Scoring**

- > 8 points: Definite FH
- 6-8 points: Probably FH
- 3-5 points: Possible FH
- <3 points: Unlikely FH

### Appendix 2: Simon Broome Register Diagnostic Criteria for Definitive FH[7]

**Adults**: Total cholesterol levels > 290 mg/dL (7.5 mmol/L) or LDL-C > 190 mg/dL (4.9 mmol/L)

**Children less than 16 years of age**: Total cholesterol levels > 260 mg/dL (6.7 mmol/L) or LDL-C > 155 mg/dL (4.0 mmol/L)

**Plus at least one of the two:**

1. Physical findings: tendon xanthomas or tendon xanthomas in a first or second degree relative. OR
2. DNA-based evidence of an LDL-receptor mutation, familial defective apo B-100, or a PCSK9 mutation.
### Cross References

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<th>Drug</th>
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<td>Praluent, alirocumab</td>
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### References


### Revision History

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<td>07/16/2021</td>
<td>New policy (effective 8/15/2021). Limits coverage to patients with homozygous familial hypercholesterolemia (HoFH) as adjunct to other lipid-lowering therapies, the setting in which it was studied and has a labeled indication.</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

**Policy No:** dru682

**Topic:** Rybrevant, amivantamab

**Date of Origin:** November 15, 2021

**Committee Approval Date:** October 15, 2021

**Next Review Date:** September 2022

**Effective Date:** November 15, 2021

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**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Amivantamab (Rybrevant) is an intravenously administered medication used in the treatment of advanced or metastatic non-small cell lung cancer (NSCLC).
**Policy/Criteria**

Most contracts require pre-authorization approval of amivantamab (Rybrevant) prior to coverage.

I. **Continuation of therapy (COT):** Amivantamab (Rybrevant) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

       1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

       AND

       2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Amivantamab (Rybrevant) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

   A. A diagnosis of **locally advanced or metastatic non-small cell lung cancer** (NSCLC).

   AND

   B. Documentation of epidermal growth factor receptor (EGFR) exon 20 insertion mutation.

   AND

   C. There is disease progression on or after platinum-containing (e.g., carboplatin, cisplatin) chemotherapy regimen unless contraindicated.

   AND

   D. Amivantamab (Rybrevant) is used as monotherapy.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers amivantamab (Rybrevant) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, amivantamab (Rybrevant) may be approved for up to FDA-recommended dose and frequency limits until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

III. Amivantamab (Rybrevant) is considered investigational when used for all other conditions and/or when given concomitantly with any other cytotoxic or targeted chemotherapy medication.

Position Statement

Summary

- Amivantamab (Rybrevant) is an antibody that targets epidermal growth factor receptor (EGFR) and mesenchymal epithelial transition (MET) receptors.

- The intent of this policy is to allow for coverage of amivantamab (Rybrevant) for the indication and dose for which it has been shown to be safe and effective, as detailed in the coverage criteria.

- Amivantamab (Rybrevant) is approved as monotherapy for patients with locally advanced or metastatic non-small cell lung cancer (NSCLC) with EGFR exon 20 insertion mutations, whose disease has progressed on or after platinum-based chemotherapy.

- The approval of amivantamab (Rybrevant) in locally advanced or metastatic NSCLC is based on tumor response rates in a cohort of 81 patients whose tumors had exon 20 insertion mutations. The effect of this therapy on clinically meaningful outcomes (such as overall survival), or its effectiveness relative to other therapies, is not known.

- The National Comprehensive Cancer Network (NCCN) treatment guideline for NSCLC lists amivantamab (Rybrevant) as a treatment option when given as subsequent therapy for patients with advanced/metastatic NSCLC with an EGFR exon 20 insertion mutation.

- Amivantamab (Rybrevant) has not been shown to be safe and effective in any other condition or when used in combination with cytotoxic or targeted chemotherapy medication.

- The initial dose of amivantamab (Rybrevant) may be covered for up to the doses studied in clinical trials, until disease progression or unacceptable toxicity. The safety and effectiveness of higher doses has not been studied.
Regence Pharmacy Services performs independent analyses of oncology medication evidence. NCCN clinical practice guidelines assignment of a category 2a/b recommendation does not necessarily establish medically necessity. The Regence Pharmacy Services analysis and coverage policy may differ from NCCN clinical practice guidelines.

Clinical Efficacy [1]

The efficacy of amivantamab (Rybrevant) is based on a low quality, non-comparative, open-label, phase 1 trial in patients with advanced or metastatic NSCLC with an EGFR exon 20 insertion mutation whose disease progressed on or after platinum-based chemotherapy.

- Patients received a median of two prior lines of therapy and either had a performance status of 0 (32%) or 1 (68%). Patients with untreated brain metastasis were excluded.
- The study evaluated overall response rate (ORR) as the primary endpoint. Tumor response is not a validated surrogate for any clinically relevant endpoint (such as overall survival) in metastatic NSCLC.
- The overall response rate (ORR) was 40%. Most were partial responses (4% were considered complete responses). The duration of response was 11 months.
- The efficacy of amivantamab (Rybrevant) relative to other NSCLC therapies (e.g., chemotherapy) is unknown; its place in therapy has not been adequately defined.

Guidelines [2]

- The National Comprehensive Cancer Network (NCCN) NSCLC guideline lists amivantamab (Rybrevant) monotherapy as a treatment option for advanced or metastatic disease in the subsequent-line setting when an EGFR exon 20 insertion mutation is present.
- Chemotherapy has been the standard of care for the subsequent-line treatment of patients with metastatic NSCLC, including patients with EGFR exon 20 insertion mutations.

Investigational Uses

- There are no published clinical trials evaluating the safety or efficacy of amivantamab (Rybrevant) outside of the settings above, as described in the coverage criteria.
- The safety and efficacy of amivantamab (Rybrevant) have not been established when used in doses higher than listed on the package insert/prescribing information.

Safety [1]

- Overall, the known side effects experienced with amivantamab (Rybrevant) appear to congruent with EGFR and MET inhibitors and appears be acceptable in a population with metastatic NSCLC.
- However, approximately 11% of patients in the clinical trial stopped taking amivantamab (Rybrevant) due to side effects, suggesting there may be some issues with tolerability.
- Infusion-related reactions are also possible. Premedication with diphenhydramine is recommended. For more severe reactions, dexamethasone and acetaminophen may be used.
**Dosing and Administration**[^1]

- Amivantamab (Rybrevant) is administered:
  * Based on weight at a dose of 1050 mg for < 80 kg and 1400 mg for ≥ 80 kg.
  * Intravenously weekly for four weeks with the initial dose as a split infusion in week 1 on day 1 and day 2, then administered every 2 weeks thereafter until disease progression or unacceptable toxicity.
  * As a monotherapy.

- There are recommendations to modify the dose or withhold amivantamab (Rybrevant) for infusion reactions, interstitial lung disease, dermatological adverse reactions, and other adverse reactions.

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<td>HCPCS</td>
<td>J9999</td>
<td>Not otherwise classified, antineoplastic drug</td>
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**References**

1. Rybrevant (amivantamab) [prescribing information]. Horsham, PA: Janssen Biotech; May 2021.


**Revision History**

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<td>10/15/2021</td>
<td>New policy (effective 11/15/2021). Limits coverage to patients with locally advanced/metastatic NSCLC with EGFR exon 20 insertion mutations as subsequent-line, the setting in which it was studied and has a labeled indication.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: Saphnelo, anifrolumab

Policy No: dru688

Date of Origin: November 15, 2021

Committee Approval Date: October 15, 2021

Next Review Date: March 2022

Effective Date: January 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Anifrolumab (Saphnelo) is a type I interferon receptor antagonist a used in the treatment systemic lupus erythematosus who are receiving standard therapy.
Policy/Criteria

Most contracts require pre-authorization approval of anifrolumab (Saphnelo) prior to coverage.

I. Continuation of therapy (COT): Anifrolumab (Saphnelo) may be considered medically necessary for COT when criterion A, B, or C below AND D is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.
II. New starts (treatment-naïve patients): Anifrolumab (Saphnelo) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

A. A diagnosis of active, **systemic lupus erythematosus** (SLE) established by or in conjunction with a specialist in rheumatology.

AND

B. Previous treatment with at least one of the following have been ineffective: hydroxychloroquine, methotrexate, azathioprine, or mycophenolate mofetil, unless all are contraindicated or not tolerated.

AND

C. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers anifrolumab (Saphnelo) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, anifrolumab (Saphnelo) will be authorized in quantities up to 300 mg every 4 weeks.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement must be provided, relative to baseline symptoms.

IV. Anifrolumab (Saphnelo) is considered investigational when used for all other conditions, including but not limited to:

A. Central nervous system lupus.

B. Lupus nephritis.

C. Use in combination with belimumab (Benlysta).

Position Statement

**Summary**

- Anifrolumab (Saphnelo) is an intravenously administered type 1 interferon antagonist approved for the treatment of moderate to severe systemic lupus erythematosus (SLE) who are receiving standard therapy. [1]

- The intent of this policy is to limit use of anifrolumab (Saphnelo) to patients with a diagnosis of SLE who have had in adequate response to standard therapies.

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dru688.1

September 1, 2022

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
Anifrolumab was evaluated in two phase 3 studies and one phase 2 study. All were 52-week double-blind placebo-controlled trials. All patients had disease activity despite treatment with standard SLE therapy (either one or any combination of oral corticosteroids, hydroxychloroquine, and/or immunosuppressants). Results from the three studies showed that anifrolumab increased the rate of clinical response as measured by validated indexes of disease severity. [2 3]

2019 European League Against Rheumatism (EULAR) Guidelines for SLE recommend that all patients receive hydroxychloroquine. Immunosuppressants such as methotrexate, azathioprine, or mycophenolate should be considered in patients who had an inadequate response to hydroxychloroquine. Glucocorticoids (e.g., prednisone) are recommended for the treatment of flares and to provide symptom relief. The dose of glucocorticoids should be minimized and withdrawn when possible. [4]

* Belimumab is recommended in patients with inadequate control to hydroxychloroquine with or without immunosuppressants.

* While guidelines have not yet addressed the use of anifrolumab, it was studied in patients who were receiving standard care (hydroxychloroquine in combination with immunosuppressive agents and/or glucocorticoids).

Anifrolumab (Saphnelo) is administered as an intravenous (IV) infusion every 4 weeks. The safety and effectiveness of higher doses have not been established. [1]

The safety and effectiveness of anifrolumab (Saphnelo) in conditions other than SLE have not been established.

The use of anifrolumab (Saphnelo) in patients with lupus nephritis and central nervous system (CNS) lupus has not been evaluated. Anifrolumab (Saphnelo) is not recommended in these settings. [1]

Anifrolumab (Saphnelo) has not been studied in combination with other biologic therapies, including belimumab (Benlysta). [1]

New technologies and pharmaceuticals allow therapeutic services, such as infusion therapy, to be administered safely, effectively, and much less costly outside of hospital-based infusion centers (i.e., hospital outpatient settings). Sites of care such as doctor’s offices, infusion centers, home infusion, and approved hospital-based infusion centers are well-established, accepted by physicians, and provide the best value to patients to reduce the overall cost of care.

Clinical Efficacy

Approval for anifrolumab was based on two phase 3 trials and one phase 2 trial. [3] [1]

All studies were 52-weeks in duration included patients with SLE who were receiving standard therapy (HCQ or immunosuppressive therapy) with or without corticosteroids. Patients were maintained on their existing therapies throughout the trial, except for corticosteroids which were tapered off. [1 3]
- Efficacy was evaluated using Systemic Lupus Erythematosus Responder Index (SRI-4) and BILAG-based Composite Lupus Assessment (BICLA). Both are composite indices of treatment response in SLE though their exact components differ.
- Overall, results showed that treatment with anifrolumab (Saphnelo) increased the rate of response compared to standard therapy alone. However, one phase 3 study (TULIP-1) did not meet its primary endpoint of SRI-4 response.

**Investigational Uses**
- There are no published clinical trials evaluating the safety or efficacy of anifrolumab (Saphnelo) for the treatment of any condition other than systemic lupus erythematosus.
- The prescribing information for anifrolumab (Saphnelo) contains a limitation of use stating that it has not been evaluated for the treatment of lupus nephritis or CNS lupus. Use of anifrolumab (Saphnelo) is not recommended in these settings. [1]
- Combination use of belimumab and anifrolumab (Saphnelo) is considered investigational. Clinical trials of anifrolumab (Saphnelo) did not allow combination use. The safety and efficacy of combined use has not been established.

### Cross References

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<td>Lupkynis, voclosporin, Medication Policy Manual, Policy No. dru678</td>
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<td>Infused Medication Alternative Site of Care, Medication Policy Manual, Policy No. dru408</td>
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### References

3. Food and Drug Administration, BLA 761123 Multi-disciplinary Review and Evaluation Saphnelo (anifrolumab-fnia) for adults with SLE: [https://www.accessdata.fda.gov/drugsatfda_docs/nda/2021/761123Orig1s000MultidisciplineR.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/nda/2021/761123Orig1s000MultidisciplineR.pdf). Accessed:
**Revision History**

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<td>11/11/2021</td>
<td>Added SOC requirements to policy to align with dru408 1/1/2022 effective date.</td>
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<td>10/15/2021</td>
<td>New policy (effective 11-15-2021). Limits coverage to patients with systemic lupus erythematosus (SLE) in patients with active disease despite standard therapies, the setting in which it was studied and has a labeled indication.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Policy No: dru690

Topic: Tivdak, tisotumab vedotin

Date of Origin: April 15, 2022

Committee Approval Date: March 18, 2022

Next Review Date: June 2023

Effective Date: April 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Tisotumab vedotin (Tivdak) is an intravenously administered antibody-drug conjugate that is used for treating specific types of cancer (advanced cervical cancer).
Policy/Criteria

Most contracts require pre-authorization approval of Tivdak (tisotumab vedotin) prior to coverage.

I. Continuation of therapy (COT): Tivdak (tisotumab vedotin) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Tivdak (tisotumab vedotin) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

A. A confirmed diagnosis of cervical cancer, recurrent or metastatic.

AND

B. There has been disease progression on or after at least one prior chemotherapy doublet regimen (e.g., cisplatin/paclitaxel, topotecan/paclitaxel).

AND

C. For programmed death-ligand 1 (PD-L1)-expressing tumors with a Combined Positive Score (CPS) ≥ 1, there has been disease progression on or after Keytruda (pembrolizumab), unless contraindicated or not tolerated.

Please note: These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
AND

D. Tivdak (tisotumab vedotin) will be used as monotherapy.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Tivdak (tisotumab vedotin) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Tivdak (tisotumab vedotin) will be approved for up to FDA-recommended dose and frequency limits until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Tivdak (tisotumab vedotin) is considered investigational when used in the front-line disease setting for cervical cancer, and for all other conditions.

Position Statement

Summary

- Tivdak (tisotumab vedotin) is an intravenously administered tissue factor (TF)-directed antibody-drug conjugate (ADC) that delivers chemotherapy to TF expressing cancer cells.

- The intent of this policy is to allow coverage of Tivdak (tisotumab vedotin) in the clinical setting described above (in the coverage criteria), where it has been evaluated for efficacy, up to the dose shown to be safe in clinical trials. FDA approval of Tivdak (tisotumab vedotin) was based on low quality data from a single, small, non-comparative, non-blinded study that evaluated an endpoint that has not been proven to predict clinical benefit.

- Tivdak (tisotumab vedotin) was evaluated as a monotherapy in patients with recurrent of metastatic cervical cancer that progressed after one or two lines of prior therapy, at least one of which was doublet chemotherapy, the current front-line standard of care (SOC).

- In the pivotal clinical study, Tivdak (tisotumab vedotin) was found to temporarily slow or stop the growth of tumors in about one-quarter of the patients. Seven patients (7%) were considered to have a complete response. It is not known how temporarily impacting tumor growth ultimately affects clinical outcomes like overall survival or disease-associated symptom control.

- Tivdak (tisotumab vedotin) has only been used in the subsequent-line treatment setting. All patients enrolled in the clinical trial were of good performance status (PS) and were candidates for therapy with doublet chemotherapy regimens, the front-line SOC. Patients who were not fit for doublet chemotherapy (poor PS) were excluded from the trial. Therefore, the safety and efficacy of Tivdak (tisotumab vedotin) in patients with poor PS or those unable to tolerate doublet chemotherapy is unknown.
- It is not known how the efficacy of Tivdak (tisotumab vedotin) compares with other therapies used in the subsequent-line advanced cervical cancer treatment setting.

- Tivdak (tisotumab vedotin) carries a Boxed Warning for ocular toxicity, including severe vision loss and corneal ulceration. In some patients these ocular adverse events may persist or worsen even after treatment is withdrawn.

- Keytruda (pembrolizumab) is approved for use as an add-on to front-line chemotherapy doublet therapy for advanced cervical cancer when tumors express programmed death-ligand 1 [PD-L1; with a Combined Positive Score (CPS) ≥ 1] based on improved overall survival relative to the chemotherapy doublet alone. It is also approved as monotherapy in the subsequent-line setting for PD-L1-expressing tumors where the quality of evidence is similar to that of Tivdak (tisotumab vedotin). Keytruda (pembrolizumab) is more cost effective among these options. Therefore, Tivdak (tisotumab vedotin) is coverable only after use of Keytruda (pembrolizumab) for PD-L1 expressing cervical cancer.

- The National Comprehensive Cancer Network (NCCN) treatment guideline lists Tivdak (tisotumab vedotin) and Keytruda (pembrolizumab) among potential treatment options for advanced cervical cancer when there has been disease progression on or after front-line doublet chemotherapy.

- Tivdak (tisotumab vedotin) may be covered in doses up to 2 mg/kg (max of 200 mg) IV every three weeks until disease progression, the dose studied in the pivotal trial. The safety and effectiveness of higher doses have not been established.

- The safety and effectiveness of Tivdak (tisotumab vedotin) in conditions other than advanced cervical cancer have not been established.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.
Disease Background \[1,2\]
- When detected in early stages, cervical cancer is potentially curable. However, once it metastasizes to distant sites it is rarely curable, and treatment is palliative.
- Cisplatin is the most effective agent for metastatic cervical cancer. However, by the time the disease progresses to advanced stages, most patients are no longer sensitive to single-agent cisplatin due to its use as a radiosensitizing agent in earlier stages of the disease. For this reason, multi-agent cisplatin-containing regimens are used in metastatic disease.

Clinical Efficacy \[1,3\]
- The efficacy of Tivdak (tisotumab vedotin) was evaluated in a small, non-comparative, non-blinded study [innovaTV 204] that evaluated tumor response in patients with recurrent or metastatic cervical cancer that had progressed on or after prior doublet chemotherapy.
  * Nearly all enrolled patients (94%) had extra-pelvic metastatic disease.
  * All patients had good performance status (PS) and prior doublet chemotherapy (either cisplatin plus paclitaxel or topotecan plus paclitaxel) with or without bevacizumab. Patients in the study had at least one, but no more than two prior therapies in the advanced disease setting.
  * Patients with any histology were included in the study; however, those with squamous cell carcinoma made up the majority (68%) of the population.
  * Partial tumor response was observed in 24% of patients, with 7 patients (7%) achieving a complete response. The median duration of response was 8.3 months.
- There is currently no data comparing Tivdak (tisotumab vedotin) with any other therapy used in the management of advanced cervical cancer, and there is no data evaluating clinical outcomes such as survival or symptom control.
- A phase 3 randomized controlled trial (RCT) studying Keytruda (pembrolizumab) as an add-on therapy to front-line doublet chemotherapy in advanced cervical cancer demonstrated improved overall survival with this combination relative to doublet chemotherapy alone. Keytruda (pembrolizumab) has also been studied and is approved as monotherapy for PD-L1-expressing (CPS ≥ 1) advanced cervical cancer when used in the subsequent-line treatment setting where the quality of evidence is similar to that of Tivdak (tisotumab vedotin). \[4,5\]
- The National Comprehensive Cancer Network (NCCN) cervical cancer guideline lists Tivdak (tisotumab vedotin) as a treatment option for recurrent or metastatic cervical cancer after progression on standard of care chemotherapy. Pembrolizumab is listed as preferred option in this population when tumors express PD-L1 (CPS ≥ 1). \[2\]

Investigational Uses \[6,7\]
- There is no published information evaluating the safety and efficacy of Tivdak (tisotumab vedotin) in disease settings other than as subsequent-line therapy for advanced cervical cancer.
- The NCCN Compendium does not currently recommend Tivdak (tisotumab vedotin) for any uses other than second- or subsequent-line treatment of advanced cervical cancer.
Safety [1,5]

- Tivdak (tisotumab vedotin) carries a Boxed Warning for potentially serious ocular toxicity, including severe vision loss and corneal ulceration. Ocular adverse events (AEs) may persist or worsen even after treatment is withdrawn.
- Other serious AEs include peripheral neuropathy, hemorrhage, and pneumonitis.

Cross References

Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367

References

6. NCCN Drugs and Biologics Compendium (NCCN Compendium) [Updated regularly] [cited 11/19/2020]. Available from: https://www.nccn.org/professionals/drug_compendium/content/.

Revision History

<table>
<thead>
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<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>3/18/2022</td>
<td>New policy (effective 4/15/2022). Limits coverage to monotherapy in patients with recurrent or metastatic cervical cancer whose disease has progressed on or after doublet chemotherapy and, for tumors that express PD-L1 (CPS ≥ 1), pembrolizumab unless contraindicated or not tolerated.</td>
</tr>
</tbody>
</table>

Drug names identified in this policy are the trademarks of their respective owners.
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Efgartigimod (Vyvgart) is an immune globulin 1 (IgG1) fragment antibody that increases IgG degradation in generalized myasthenia gravis (gMG).
Policy/Criteria

Most contracts require pre-authorization approval of Vyvgart (efgartigimod) prior to coverage.

I. Continuation of therapy (COT): Vyvgart (efgartigimod) may be considered medically necessary for COT when criterion A, B, or C, AND D AND E below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND

E. “Administration, Quantity Limitations, and Authorization Period” below applies, as well as “Investigational Uses” for combination therapy

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Vyvgart (efgartigimod) may be considered medically necessary when clinical documentation (including, but not limited to chart notes) confirming that criteria A and B below are met:

A. Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].
AND

B. A diagnosis **generalized myasthenia gravis** (gMG) when criteria 1 through 7 below are met:

1. The diagnosis has been established by or in consultation with a neurologist who is a sub-specialist in neuromuscular disorders.

AND

2. A positive serologic test for anti-acetylcholine receptor (anti-AChR) antibodies.

AND


AND

4. Prior to starting Vyvgart (efgartigimod) therapy, documentation of a myasthenia gravis activities of daily living (MG-ADL) score of greater than or equal to 5.

AND

5. The prescriber has evaluated the patient’s current medication list for drugs that may unmask or worsen myasthenia gravis (see Appendix I) and such drugs have been discontinued, unless documented to be medically contraindicated to discontinue.

AND

6. Pyridostigmine has been ineffective or not tolerated unless there is a documented medical contraindication to use.

AND

7. Standard MG treatment, given continuously over the last 365 days, is documented as ineffective (lack of MG symptom control as verified by a MG scoring tool), unless all options listed below are documented as medically contraindicated or not tolerated.

Standard MG therapy is defined as use of all three of the following (criteria a, b, and c).

a. At least two immunosuppressive therapies (ISTs) (including azathioprine, cyclosporine, mycophenolate, tacrolimus, methotrexate, or cyclophosphamide), either in combination or as monotherapies.

**PLEASE NOTE:** Worsening of MG symptoms during IST dose taper is not considered documentation of “ineffective.”

AND

b. At least one of the following criteria (i. or ii.) below are met:

i. Chronic intravenous immune globulin (IVIG), given at least monthly over at least the past six months.
PLEASE NOTE: Use of short-term IVIG as needed for myasthenic crisis will not satisfy this criterion.

OR

ii. Plasmapheresis/plasma exchange (PLEX), given at least four times in the past 12 months without symptom control.

AND

c. The patient has had a thymectomy, unless documented as medically contraindicated.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Vyvgart (efgartigimod) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Vyvgart (efgartigimod) will be covered in quantities as follows:

1. **Initial Authorization:** Up to eight doses in a 14-week period (up to 10 mg/kg/dose, not to exceed 1200 mg/dose).

2. **Reauthorization:** Up to sixteen infusions in a 28-week period (up to 10 mg/kg/dose, not to exceed 1200 mg/dose).

3. Authorization shall be reviewed at least every 28 weeks to confirm that current medical necessity criteria are met and that the medication is effective. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that the medication is providing clinical benefit, including disease stability or improvement must be provided, relative to baseline symptoms. A standard disease scoring tool must be included, such as the total myasthenia gravis activities of daily living (MG-ADL) score, total quantitative myasthenia gravis (QMG) score, and/or myasthenia gravis composite (MGC) scale.

IV. Vyvgart (efgartigimod) is considered investigational when used for all other conditions, including but not limited to:

A. Myasthenia gravis with MUSK antibodies or antibodies other than anti-AChR.

B. Use in combination with complement inhibitors [such as Soliris (eculizumab)] or other targeted therapies for myasthenia gravis.

C. Dosing of Vyvgart (efgartigimod) sooner than 50 days from the start of the previous cycle.
Position Statement

Summary

- The intent of the policy is to allow for coverage of Vyvgart (efgartigimod) for generalized myasthenia gravis (gMG) when managed by a specialist, limit to more severe disease, and encourage the use of lower cost therapies (when appropriate), and limit coverage to doses studied and shown to be safe and effective in clinical trials.

- Myasthenia gravis (MG) is a rare autoimmune disease arising from T cell-dependent immunologic attack of AChR, muscle-specific tyrosine kinase (MuSK), and/or other receptors found on the postsynaptic neuromuscular junction, resulting in striated muscle weakness.

  * MG presents with painless, fluctuating, fatigable weakness of specific muscle groups. Initially, patients most frequently present with ocular MG of the eyelids and extraocular muscles, presenting with asymmetric ptosis and diplopia. As weakness extends beyond ocular muscles, the disease progresses into gMG.

  * Approximately 10-15% of all MG cases consist of refractory gMG that presents with severe debilitating muscle weakness despite substantial use of long-term corticosteroids or multiple steroid-sparing immunosuppressive agents, resulting in substantial negative effects on activities of daily living and quality of life. Vyvgart (efgartigimod) is coverable for the treatment of gMG when front-line therapies are not effective.

- Vyvgart (efgartigimod) provides a new treatment option for refractory gMG. While the clinical data is promising based on one 26-week phase 3 study, there are several limitations in the body of evidence.[1] Use should be limited to patients who have failed other options, as detailed in the coverage criteria.

- Standard therapies recommended by treatment guidelines for management of MG include acetylcholinesterase (ACh) inhibitors (pyridostigmine), corticosteroids, various DMARDs for immunosuppressant therapy (IST), intravenous immunoglobulin (IVIG), plasmapheresis/plasma exchange (PLEX), and thymectomy. [2-6]

  * Acetylcholinesterase inhibitors are used for temporary symptomatic relief of MG symptoms, by slowing the breakdown of acetylcholine at the neuromuscular junction. However, their use is limited as an adjunct therapy to immunotherapy in those with residual or refractory MG or for treatment of ocular and mild gMG in those who cannot receive immune suppression. [4]

  * Corticosteroids are the most widely used immune modulator for MG.

  * Corticosteroids are effective in ocular MG and in patients with gMG with unsatisfactory responses to acetylcholinesterase inhibitors; however, they are associated with significant dose-dependent adverse events and should not be used for extended durations. [5]

  * Azathioprine, cyclosporine, and mycophenolate mofetil are standard on-steroid immunosuppressant therapy (IST) and act as steroid-sparing agents. Other options include cyclophosphamide, methotrexate, and tacrolimus. [3 6 7]
Onset of effect is slow (up to 9-12 months). Once goals are met, steroids may be slowly tapered; however, many patients require long-term low-dose steroids for symptom control.

Guidelines recommend dose adjustments no more frequently than every 3 to 6 months.

Once treatment effective is achieved and doses are maintained for six months to two years of therapy, IST doses should be tapered to the lowest effect dose.

* Plasma exchange/plasmapheresis (PLEX) and IVIG provides short-term symptomatic relief during exacerbations for surgical preparation or in patients with sepsis through downregulating autoantibodies and/or inducing anti-idiotypic antibodies. However, IVIG may be a maintenance treatment option for patients intolerant to or not responding to an adequate course of non-steroid IST.

* Patients with thymoma should undergo thymectomy. In non-thymomatous patients, thymectomy is a treatment option to minimize need for immunotherapy (either avoid, dose minimize, or use for refractory MG symptoms). However, thymectomy may not be medically possible in unstable MG patients.

* Of note, another targeted therapy for AChR antibody positive MG includes complement inhibitor (such as Soliris [eculizumab]).

- MG-ADL is a scoring tool used in clinical practice, along with MG composite score, for monitoring progression of MG and response to therapies.[1]
- Vyvgart (efgartigimod) has not been studied and shown to be safe or effective in patients with other antibodies, including MuSK antibodies, antibodies to the agrin receptor low-density lipoprotein receptor-related protein 4 (LRP4), or any other antibodies, nor in MG (without generalized MG symptoms) or those in myasthenic crisis (MGFA Class V).
- The safety and efficacy of Vyvgart (efgartigimod) in combination with other targeted MG therapies, such as Soliris (eculizumab), have not been established.
- Vyvgart (efgartigimod) may be covered for refractory MG at the doses proven to be safe and effective in clinical trials, as detailed in the coverage criteria. Vyvgart (efgartigimod) has not been studied when given more frequently than every 50 days per cycle.

**Clinical Efficacy**

- The evidence for Vyvgart (efgartigimod) in gMG is limited. Efgartigimod was approved for the treatment of gMG based on one 26-week, phase 3, ADAPT[1] study, comparing efgartigimod to placebo in patients who had a gMG with a MG-ADL score $\geq 5$ and who were on stable doses of $\geq 1$ treatment for gMG.

* In ADAPT, the primary endpoint of proportion of AChR-ab+ patients who were MG-ADL responders ($\geq 2$-point MG-ADL improvement sustained for $\geq 4$ weeks) in the first treatment cycle (8 weeks) was higher in the efgartigimod arm versus the placebo arm.

* Most patients (~70%) in the ADAPT study had at least one prior non-steroidal
immunosuppressant agent; ~70% had prior thymectomy.

* Although patients were permitted a 7-week cycle duration between cycles (time from first infusion of one cycle to the first infusion of the next cycle), the median duration between cycles was 10 weeks.

* The ADAPT study was a 26-week study period thus it may be insufficient to comprehensively assess the efficacy of a drug therapy in a chronic disease, including the durability of treatment effect.

**Investigational Uses**

- Vyvgart (efgartigimod) is being studied for a variety of other indications. However, at this time, there is insufficient evidence to establish the safety and efficacy of Vyvgart (efgartigimod) in any other indications (other than detailed in the coverage criteria).
- There are no published clinical trials evaluating the safety or efficacy of Vyvgart (efgartigimod) given in combination with Soliris (eculizumab).
- Evidence for the use of Vyvgart (efgartigimod) in MUSK-antibody positive or AChR-Ab negative population is limited. Although the ADAPT\(^1\) study included AChR-Ab negative patients, the number of patients was low (n=38), and results of this subgroup analysis were underpowered (68% response rate in the efgartigimod arm versus 63% in the placebo arm). Only six patients in the ADAPT trial were MUSK-antibody positive.
- The safety of initiating subsequent cycles of Vyvgart (efgartigimod) sooner than 50 days from the start of the previous treatment cycle has not been established.\(^8\)

**Safety\(^{1,8}\)**

- Although Vyvgart (efgartigimod) does not have a boxed warning for life-threatening and fatal meningococcal infections, long-term safety data is lacking and there are concerns for infections associated with prolonged lowering of IgG. In the ADAPT\(^{1}\) trial, 46% of patients had an adverse event related to infections, most of which were mild to moderate severity.
- A one-hour post-observation period is required to monitor for hypersensitivity reactions.

**Dosing\(^{1,8}\)**

- In the ADAPT\(^{1}\) trial, patients on efgartigimod were given 10 mg/kg IV (1200 mg for those weighing 120 kg or more) once weekly x 4 weeks. The interval was variable but no sooner than 50 days after initiation of the previous cycle. Patients were re-dosed only when they no longer had a clinically meaningful improvement on the MG-ADL.

**Cross References**

<p>| Complement Inhibitors, Medication Policy Manual, Policy No. dru385 |
| Site of Care Review, Medication Policy Manual, Policy No. dru408 |</p>
<table>
<thead>
<tr>
<th>Codes</th>
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<td>J3590</td>
<td>Unclassified biologics</td>
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**Appendix 1: Medications that may unmask or worsen myasthenia gravis**

*Including, but not limited to this list. Medication lists will be reviewed in full versus compendium (such as DrugDex).

<table>
<thead>
<tr>
<th>Aminoglycosides</th>
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<tbody>
<tr>
<td>Amantadine</td>
</tr>
<tr>
<td>Antiarrhythmics (procainamide, propafenone, quinidine)</td>
</tr>
<tr>
<td>Antiepileptics (various, carbamazepine, gabapentin, phenytoin, etc.)</td>
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<tr>
<td>Cancer immunotherapies, including but not limited to:</td>
</tr>
<tr>
<td>Anti-programmed death receptor-1 monoclonal antibodies (PD1s, PDL-1s; Opdivo [nivolumab], Keytruda [pembrolizumab], etc.)</td>
</tr>
<tr>
<td>Yervoy (ipilimumab)</td>
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<tr>
<td>Provenge (sipuleucel-T)</td>
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<tr>
<td>Antihistamines (diphenhydramine)</td>
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<tr>
<td>Beta-blockers</td>
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<tr>
<td>Calcium channel blockers (felodipine, verapamil)</td>
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<tr>
<td>Colchicine</td>
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<tr>
<td>Erythromycins (azithromycin, clarithromycin, clindamycin)</td>
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<tr>
<td>Plaquenil (hydroxychloroquine)</td>
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<tr>
<td>Interferons (various)</td>
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<tr>
<td>Lithium</td>
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<tr>
<td>Magnesium</td>
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<tr>
<td>Neuromuscular blockers (succinylcholine, etc.)</td>
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<tr>
<td>Opioids</td>
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<tr>
<td>Phenothiazines (haloperidol)</td>
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<tr>
<td>Proton pump inhibitors (lansoprazole, omeprazole)</td>
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<tr>
<td>Quinine</td>
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<tr>
<td>Quinolones (ciprofloxacin, levofloxacin, etc.)</td>
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<tr>
<td>Statins (pravastatin, etc.)</td>
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References


Revision History

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<th>Revision Summary</th>
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<tr>
<td>03/18/2022</td>
<td>New policy (effective 4/15/2022). Limits use of Vyvgart (efgartigimod) for generalized myasthenia gravis (gMG) when managed by a specialist, limit to more severe disease and encourage the use of lower cost therapies (when appropriate), and limit coverage to doses studied and shown to be safe and effective in clinical trials.</td>
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Medication Policy Manual  

Policy No: dru697

Topic: PCSK9 Inhibitors  

- Leqvio, inclisiran
- Praluent, alirocumab
- Repatha, evolocumab

Date of Origin: June 1, 2022

Committee Approval Date: March 18, 2022  

Next Review Date: March 2023

Effective Date: June 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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The purpose of medication policy is to provide a guide to coverage. Medical Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors are used in the treatment of atherosclerotic cardiovascular disease (ASCVD) and familial hypercholesteremia.
Policy/Criteria

Most contracts require pre-authorization approval of PCSK9 inhibitors.

I. Continuation of therapy (COT): PCSK9 inhibitors may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

AND

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. For Leqvio (inclisiran) only: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): PCSK9 inhibitors may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met.

A. Leqvio (inclisiran) only: Site of care administration requirements are met [refer to Pharmacy Services Medication Policy Manual, Site of Care Review, dru408].

AND

B. At least one of the following diagnostic criteria 1 through 3 below is met.

1. Leqvio (inclisiran), Praluent (alirocumab), Repatha (evolocumab): Heterozygous familial hypercholesterolemia (HeFH) when criteria a and b are met.

   a. The requested PCSK9 inhibitor has been prescribed by or in conjunction with a specialist in cardiology or lipid management and there is clinical documentation of at least one of the following:
i. A definitive diagnosis of FH using Simon Broome diagnostic criteria or Dutch Lipid Clinic Network criteria (see Appendices 1 and 2).

OR

ii. An untreated low-density lipoprotein cholesterol (LDL-C) of ≥ 190 mg/dL (or ≥ 160 mg/dL in patients less than 20 years of age) with at least one of the following:
   1. Physical signs of FH, such as presence of tendon xanthomas, premature corneal arcus, tuberous xanthomas, or xanthelasma.

OR

2. Family History of FH.

OR

iii. Presence of a causal mutation for FH by DNA testing (e.g., a mutation in the \textit{LDLR}, \textit{APOB}, \textit{PCSK9}, or \textit{LDLRAP1} genes).

AND

b. Treatment with maximally tolerated lipid lowering therapy has failed to achieve an LDL-C of less than or equal to 100 mg/dL after at least 12 weeks of therapy. The treatment regimen must include all the following, unless contraindicated or not tolerated:
   i. A high-intensity statin (atorvastatin or rosuvastatin). If one high-intensity statin has not been tolerated due to statin-associated side effects, then at least one other statin must have been tried at a lower dose.

AND

ii. Ezetimibe.

AND

iii. For \textit{Leqvio (inclisiran)} only: Praluent (alirocumab) or Repatha (evolocumab).

OR

2. \textbf{Praluent (alirocumab) or Repatha (evolocumab) only: homozogous familial hypercholesterolemia (HoFH)} when criteria a and b below are met:
   a. The requested PCSK9 inhibitor has been prescribed by or in conjunction with a specialist in cardiology or lipid management and there is clinical documentation of at least one of the following:
      i. Genetic confirmation of two mutant alleles at the \textit{LDLR}, \textit{APOB}, \textit{PCSK9}, or \textit{LDLRAP1} gene locus.
OR

ii. An untreated low-density lipoprotein cholesterol (LDL-C) of > 500 mg/dL (or a treated LDL-C of > 300 mg/dL) with either:
   1. Cutaneous or tendon xanthoma before age 10 years.

OR

2. Evidence of heterozygous familial hypercholesterolemia in both parents.

AND

b. Treatment with maximally tolerated statin therapy has been ineffective, contraindicated, or not tolerated.

OR

3. Leqvio (inclisiran), Praluent (alirocumab), Repatha (evolocumab): clinical atherosclerotic cardiovascular disease (ASCVD) when criteria a, b, and c below are met (see Appendix 6 for definitions of ASCVD).
   a. The requested PCSK9 inhibitor has been prescribed by or in conjunction with a specialist in cardiology or lipid management.

AND

b. The member is at very high risk for ASCVD events (see Appendix 8).

AND

c. Treatment with maximally tolerated lipid lowering therapy has failed to achieve an LDL-C of less than or equal to 70 mg/dL after at least 12 weeks of therapy. The treatment regimen must include all the following, unless contraindicated or not tolerated.
   i. A high-intensity statin (atorvastatin or rosuvastatin). If one high-intensity statin has not been tolerated due to statin-associated side effects, then at least one other statin must have been tried at a lower dose.

AND

ii. Ezetimibe.

AND

iii. For Leqvio (inclisiran) only: Praluent (alirocumab) or Repatha (evolocumab).

III. Administration, Quantity Limitations, Authorization Period

A. Regence Pharmacy Services considers Praluent (alirocumab) and Repatha (evolocumab) to be coverable only under the pharmacy benefit (as self-administered medications).
B. Regence Pharmacy Services considers Leqvio (inclisiran) to be coverable only under the medical benefit (as a provider-administered medication).

C. When prior authorization is approved, PCSK9 inhibitors will be authorized in the following quantities:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Authorization Limit</th>
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<tbody>
<tr>
<td>Praluent (alirocumab)</td>
<td>Up to 150 mg every 2 weeks or 300 mg every 4 weeks.</td>
</tr>
<tr>
<td>Repatha (evolocumab)</td>
<td>Up to 140 mg every other week or 420 mg once monthly.</td>
</tr>
<tr>
<td>Leqvio (inclisiran)</td>
<td>Loading Dose: Up to 284 mg initially followed by 284 mg in 3 months.</td>
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<tr>
<td></td>
<td>Maintenance Dose: Up to 284 mg every 6 months.</td>
</tr>
</tbody>
</table>

D. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. PCSK9 inhibitors are considered not medically necessary when used for:
   A. Non-familial hyperlipidemia/hypercholesterolemia.
   B. Primary prevention of atherosclerotic cardiovascular disease (ASCVD).
   C. Primary prevention of ASCVD in patients who are statin-intolerant.

V. PCSK9 inhibitors are considered investigational when used for all other conditions, including but not limited to:
   A. In combination with other PCSK9 inhibitors or Juxtapid (lomitapide).
Position Statement

- Proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors are subcutaneous medications indicated:
  * to reduce the risk of myocardial infarction, stroke, and coronary revascularization in adults with established cardiovascular disease.
  * as an adjunct to diet, alone or in combination with other lipid-lowering therapies (e.g., statins, ezetimibe), for treatment of adults with primary hyperlipidemia (including heterozygous familial hypercholesterolemia, HeFH) to reduce low-density lipoprotein cholesterol (LDL-C).
  * as an adjunct to diet and other LDL-lowering therapies (e.g., statins, ezetimibe, LDL apheresis) in patients with homozygous familial hypercholesterolemia (HoFH) who require additional lowering of LDL-C.

- American College of Cardiology (ACC)/American Heart Association (AHA) Guidelines define clinical ASCVD as acute coronary syndromes, a history of MI, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, or peripheral arterial disease presumed to be of atherosclerotic origin.

- The intent of this policy is to limit coverage of PCSK9 inhibitors to patients with a confirmed diagnosis of HoFH, HeFH, or clinical ASCVD, who have tried and failed lower cost therapies (as detailed in the coverage criteria).

- 2018 AHA/ACC Guidelines on the Management of blood cholesterol recommend high-intensity statins for high-risk patients, such as those with clinical ASCVD or with HeFH. On average, high-intensity statins lower LDL-C by approximately ≥50%. Statins have been proven to reduce cardiovascular (CV) events and mortality; thus, they are the preferred treatment to reduce the risk ASCVD and recommended as the first-line treatment by multiple guidelines.

- AHA/ACC Guidelines recommend ezetimibe before PCSK9 inhibitors in patients with ASCVD. Although there is limited evidence supporting the strategy of ezetimibe before PCSK9 inhibitors, guidelines state that ezetimibe is widely available as a generic and has proven safety and tolerability along with CV outcomes data. [1]

- Based on results from the IMPROVE-IT study, ezetimibe has also been shown to modestly improve cardiovascular outcomes. Although, it was studied in a very narrow, high-risk population it is a treatment option in patients with clinical ASCVD or HeFH.

- The addition of ezetimibe to statin therapy typically reduces LDL-C by 15% to 30% in patients with hyperlipidemia.

- AHA/ACC Guidelines state that PCSK9 inhibitors are reasonable in patients with very high risk ASCVD who cannot achieve an LDL of < 70 mg/dL while on a high-intensity statin and ezetimibe.

- PCSK9 inhibitors have been studied in multiple placebo- or active-controlled phase 3 studies which included a variety of patients including those with HeFH and/or clinical ASCVD.

- Treatment with either Praluent (alirocumab) or Repatha (evolocumab) in combination with a statin improved CV outcomes. However, the magnitude of benefit was modest.
- CV outcomes data for Leqvio (inclisiran) is not yet available. The use of medications with proven CV benefits is required prior to coverage of Leqvio (inclisiran), as outlined in the coverage criteria, as the CV benefits of Leqvio (inclisiran) are unknown at this time.

- HeFH and HoFH may be diagnosed via clinical criteria, such as baseline LDL values, family history, and physical manifestations of FH, or through genetic testing. Commonly used diagnostic criteria include Simon Broome Diagnostic Criteria and Dutch Lipid Clinic Network Criteria for Heterozygous FH Diagnosis.

- Statins are also recommended as initial therapy for the treatment of HeFH. Non-statins may be considered in patients who are unable to reach target LDL-levels or who are statin intolerant. Although ACA/AHA guidelines do provide treatment recommendations for patients with HeFH, guidelines specifically for HeFH have been produced by the National Lipid Association (NLA) and European Atherosclerosis Society (EAS).

- NLA treatment guidelines for HeFH recommend targeting a 50% reduction in LDL-C from baseline; however higher risk patients may require a more aggressive treatment goal of less than 100 mg/dL. Patients will generally require treatment with multiple agents to achieve LDL-C goals.

- Statin-intolerance is not well defined. In a clinical trial of Praluent (alirocumab) in statin intolerant patients (defined as the inability to tolerate due to muscle symptoms at least two statins with at least one at the lower FDA-approved starting dose), over 70% of patients who were randomized to receive blinded atorvastatin 20 mg were able to complete the study. Although, this trial was conducted in a “statin intolerant” population, most of these patients were able to tolerate statin therapy, thus requiring trials of multiple statins prior to coverage of a PCSK9 inhibitor is warranted.

- 2018 AHA/ACC Guidelines state that in patients with statin-associated side effects that are not severe, it is recommended to reassess and to re-challenge to achieve a maximal LDL-C lowering by modified dosing regimen, an alternate statin or in combination with non-statin therapy.

- PCSK9 inhibitors have not been studied in combination with any other PCSK9 inhibitor or Juxtapid (lomitapide).

- PCSK9 inhibitors appear to be well-tolerated. However, additional long-term studies and clinical experience is needed with Leqvio (inclisiran).

- In late 2018, the manufacturer of Repatha (evolocumab) introduced new NDC’s (beginning with 72511) at a significant discount. The previous (legacy) NDC’s (beginning with 55513) have been discontinued as of December 31, 2019.

Clinical Efficacy

Praluent (alirocumab)

- The ODYSSEY OUTCOMES study evaluated the impact of Praluent (alirocumab) on cardiovascular outcomes in patients with a history of acute coronary syndrome (ACS) in the past 1 to 12 months. The primary endpoint was the composite of cardiovascular death, MI, stroke, and hospitalization for unstable angina. Patients were randomized to either Praluent (alirocumab) 75 mg every two weeks or placebo. All patients were on
background high-intensity statins or their maximally-tolerated dose of atorvastatin or rosvastatin.

* After a median follow-up of 2.8 years, Praluent (alirocumab) reduced the risk of the primary endpoint compared to placebo (9.5% vs. 11.1%, respectively; hazard ratio, 0.85; 95% CI, 0.78 to 0.93; P<0.001). The secondary endpoint of the composite of death from any cause, non-fatal MI, and non-fatal stroke also favored alirocumab compared to placebo (10.3% vs. 11.9%, respectively; hazard ratio 0.86; 95% CI 0.79 to 0.93; P<0.001).

* The body of evidence supports that Praluent (alirocumab) produces substantial reductions in LDL-C. \[2 3\]

* The primary endpoint in the majority of Praluent (alirocumab) phase 3 studies was percent change in LDL-C.

* Among ten placebo- and active controlled phase 3 studies, Praluent (alirocumab) reduced LDL-C by approximately 43 to 61 percent from baseline. The studies included a several populations, including those with HeFH and/or clinical ASCVD. Studies ranged in duration from 12 to 78 weeks. Results were statistically significant versus placebo and versus ezetimibe.

* In patients with HoFH the mean LDL-C reduction was approximately 36%.\[4\]

Repatha (evolocumab)

* The FOURIER study evaluated the impact of evolocumab on cardiovascular outcomes in patients with clinical ASCVD. The primary endpoint was the composite of cardiovascular death, MI, stroke, hospitalization for unstable angina, or coronary revascularization. Patients were randomized to either Repatha (evolocumab) or placebo and all patients were on background high or moderate intensity statin therapy. \[5\]

* After a median follow-up of 26 months, evolocumab modestly reduced the risk of the primary endpoint compared to placebo (9.8% vs. 11.3%, respectively; hazard ratio, 0.85; 95% CI, 0.79 to 0.92; P<0.001).

* Evolocumab also significantly reduced the risk of the key secondary composite of CV death, MI, or stroke compared to placebo (5.9% vs. 7.4%, respectively; hazard ratio, 0.80; 95% CI, 0.73 to 0.88; P<0.001). However, results for cardiovascular mortality alone were not statistically significant.

* The body of evidence supports that Repatha (evolocumab) produces substantial reductions in LDL-C. \[6\]

* The primary endpoint in the majority of Repatha (evolocumab) phase 3 studies was percent change in LDL-C. Reductions in LDL-C ranged from 54% to 71% in patients with clinical ASCVD or HeFH. \[6\]

* In patients with HoFH the mean LDL-C reduction was approximately 31%. \[7\]
Leqvio (inclisiran)

- The body of evidence supports that Leqvio (inclisiran) produces substantial reductions in LDL-C. [8, 9]
  * The primary endpoint in the majority of Leqvio (inclisiran) phase 3 studies was percent change in LDL-C.
  * Reductions in LDL-C ranged from 40% to 51% in patients with clinical ASCVD or HEFH.
- Although the data continues to evolve, CV outcomes data for Leqvio (inclisiran) is not yet available. Of note, Praluent (alirocumab) or Repatha (evolocumab) in combination with a statin resulted in a modest improvement in CV outcomes in trials.
- Several outcomes trials have demonstrated that statins reduce the risks of cardiovascular and cerebrovascular events. [1]
  * Reduction in cardiovascular and cerebrovascular risk is not unique to any specific statin and has been demonstrated with many of the available statins in a variety of patient populations, such as in patients with coronary heart disease, high cholesterol levels, normal cholesterol levels, hypertension, diabetes, and previous stroke.
  * Several primary and secondary prevention trials with simvastatin, pravastatin, lovastatin, and atorvastatin consistently demonstrate that reductions in cardiovascular events correlate with LDL-C reduction.[10-12]

Guidelines

ASCVD

- The 2018 American College of Cardiology and American Heart Association (ACC/AHA) treatment guidelines state that PCSK9 inhibitors are reasonable for patients with very high risk ASCVD who cannot achieve an LDL or < 70 mg/dL while on a high-intensity statin and ezetimibe.
  * Very high risk is defined as a history of multiple major ASCVD events or one major ASCVD event and multiple high-risk condition (see Appendix 8).
- For patients with ASCVD the first goal is to achieve a 50% or more reduction in LDL-C, but if LDL-C levels remain 70 mg/dL or great additional treatment with ezetimibe is considered reasonable.
- Guidelines acknowledge that the evidence supporting the use of ezetimibe before PCSK9 inhibitors is limited. Although, patients in both PCSK9 inhibitor outcomes studies were permitted to use ezetimibe, very few did. The recommendation placing ezetimibe ahead of PCSK9 inhibitors is primarily due to wide availability as a generic and proven safety and tolerability.
- PCSK9 inhibitors may also be considered in patients with severe primary hypercholesterolemia (e.g., HeFH) with an LDL-C of 100 mg/dL or greater despite maximally tolerated statin and ezetimibe therapy.
HeFH
- National Lipid Association (NLA) treatment guidelines for HeFH recommend targeting a 50% reduction in LDL-C from baseline; however higher risk patients may require a more aggressive treatment goal of less than 100 mg/dL. High risk HeFH patients included those with clinically evident CHD or other atherosclerotic cardiovascular disease, diabetes, a family history of very early CHD (in men < 45 years of age and women < 55 years of age), current smoking, two or more CHD risk factors, or high lipoprotein (a) ≥ 50 mg/dL. Intensification of therapy may also be considered in patients without any of the listed previously factors, if LDL-C remains ≥ 160 mg/dL (or non-HDL cholesterol ≥ 190 mg/dL), or if an initial 50% decrease is LDL-C is not achieved. [13]
- Although treatment targets are recommended by clinical guidelines, they are based primarily on surrogate endpoints, expert opinion, and studies in patients without familial hypercholesterolemia. [13-15]
- NLA guidelines recommend statins as the initial treatment for all patients with FH. Ezetimibe, niacin, and bile acid sequestrants are considered reasonable treatment options for intensification of therapy, or for those intolerant of statins. EAS guidelines for HeFH provide generally similar treatment recommendations but recommend different target LDL levels. [13]

HoFH
- HoFH is a rare, genetic disease characterized by abnormally elevated LDL cholesterol levels and an increased risk for early onset coronary heart disease. LDL levels can range from 300 to over 1000 mg/dL. If not treated, affected patients often die in early adulthood. [16]
- Treatment options include Repatha (evolocumab), Praluent (alirocumab), Juxtapid (lomitapide), traditional lipid-lowering medications, and LDL-apheresis. [16] Kynamro (mipomersen), oligonucleotide inhibitor of apolipoprotein B-100 synthesis indicated for HoFH, was discontinued by its manufacturer in 2018.

Statin intolerance
- ODYSSEY ALTERNATIVE was a 24-week study of Praluent (alirocumab) in patients who were considered to be statin intolerant, which was defined as inability to tolerate at least two statins due to muscle symptoms, with one at the lowest FDA-approved dose. [16]
  * Muscle related symptoms must have begun or increased during statin therapy and stopped when statin therapy was discontinued.
  * The trial included a 4-week, single-blind placebo run-in period, patients who experienced muscle symptoms during the placebo run-in period were excluded. After completion of the run-in period patients were randomized to Praluent (alirocumab), ezetimibe, or atorvastatin
  * In total, 314 of 361 patients completed the placebo run-in period. Of the 47 placebo run-in failures, 23 (48.9%) reported at least one skeletal muscle-related adverse event.
Approximately 70% of patients randomized to atorvastatin completed 24 weeks of the double-blind treatment period. The intent of this arm was to rechallenge patients with a statin.

Fewer patients experienced skeletal muscle-related TEAEs in the alirocumab group than the atorvastatin (HR: 0.61; 95% CI: 0.38 to 0.99) or ezetimibe (HR: 0.70; 95% CI: 0.47 to 1.06) groups. Fewer patients in the Praluent (alirocumab) group discontinued the study due to musculoskeletal AEs compared to the atorvastatin group (15.9% versus 22.2%, respectively).

Although, this trial was conducted in a “statin intolerant” population, the majority of these patients were able to tolerate statin therapy, thus requiring multiple statin-rechallenges prior to use of a PCSK9 inhibitor is warranted.

Other studies have also concluded that most patients can tolerate a statin after being re-challenged.

In a retrospective analysis of 1,605 statin-intolerant patients conducted by researchers at the Cleveland Clinic, 72.5% of patients were able to tolerate a statin after re-challenge. [17]

Authors of a separate retrospective analysis conducted at two academic medical centers concluded that most patients who are rechallenged can tolerate statins long-term. In this study, 92.2% of patients who were re-challenged with a statin were able to continue taking statins after 12-months.

2018 AHA/ACC Guidelines state that in patients with statin-associated side effects that are not severe, it is recommended to reassess and to re-challenge to achieve a maximal LDL-C lowering by modified dosing regimen, an alternate statin or in combination with non-statin therapy. Guidelines authors noted that a large majority of patients can tolerate statin re-challenge with an alternative statin or alternative regimen, such as reduced dose or in combination with non-statin.

The ACC has developed an online application to help providers assess, treat, and manage patients with possible statin intolerance. The tool is available at: http://tools.acc.org/StatinIntolerance/

**Dosing considerations**

The recommended starting dose for Praluent (alirocumab) is 75 mg administered subcutaneously once every 2 weeks. If the LDL-C response is inadequate, the dose may be increased to the maximum dose of 150 mg administered every 2 weeks. An alternative starting dose of 300 mg every 4 weeks may also be considered.[3]

The recommended starting dose of Repatha (evolocumab) for patients with HeFH or clinical ASCVD is 140 mg once every 2 weeks or 420 mg once monthly, administered subcutaneously. The recommended starting dose for patients with HoFH is 420 mg once monthly.[6]

The recommended dose of Leqvio (inclisiran) is 284 mg given subcutaneously as a single injection, repeated at 3 months, then every 6 months thereafter.[18]
### Appendix 1: Dutch Lipid Clinic Network criteria [12]

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1: family history</strong></td>
<td></td>
</tr>
<tr>
<td>First-degree relative with known premature (less than age 55 for males or 65 for females) coronary heart disease</td>
<td>1</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>First-degree relative with known LDL cholesterol above 95th percentile</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>First-degree relative with tendon xanthoma and/or corneal Arcus</td>
<td>2</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Children &lt; 18 years with LDL cholesterol above 95th percentile</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2: clinical history</strong></td>
<td></td>
</tr>
<tr>
<td>Premature coronary heart disease</td>
<td>2</td>
</tr>
<tr>
<td>Subject has cerebral or peripheral vascular disease</td>
<td>1</td>
</tr>
<tr>
<td><strong>Group 3: physical examination</strong></td>
<td></td>
</tr>
<tr>
<td>(i) Tendon xanthoma</td>
<td>6</td>
</tr>
<tr>
<td>(ii) Corneal arcus in a person before age 45</td>
<td>4</td>
</tr>
<tr>
<td><strong>Group 4: biochemical results (LDL-C)</strong></td>
<td></td>
</tr>
<tr>
<td>&gt;8.5 mmol/L (.325 mg/dL)</td>
<td>8</td>
</tr>
<tr>
<td>5–8.4 mmol/L (251–325 mg/dL)</td>
<td>5</td>
</tr>
<tr>
<td>5.0–6.4 mmol/L (191–250 mg/dL)</td>
<td>3</td>
</tr>
<tr>
<td>4.0–4.9 mmol/L (155–190 mg/dL)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Group 5: molecular genetic testing (DNA analysis)</strong></td>
<td></td>
</tr>
<tr>
<td>(i) Causative mutation shown in the LDLR, APOB, or PCSK9 genes</td>
<td>8</td>
</tr>
</tbody>
</table>

**Scoring**

- > 8 points: Definite FH
- 6-8 points: Probably FH
- 3-5 points: Possible FH
- <3 points: Unlikely FH

### Appendix 2: Simon Broome Register Diagnostic Criteria for Definitive FH [19]

**Adults:** Total cholesterol levels > 290 mg/dL (7.5 mmol/L) or LDL-C > 190 mg/dL (4.9 mmol/L).

**Children less than 16 years of age:** Total cholesterol levels > 260 mg/dL (6.7 mmol/L) or LDL-C > 155 mg/dL (4.0 mmol/L).

Plus at least one of the two:

1. Physical findings: tendon xanthomas or tendon xanthomas in a first or second degree relative. **OR**
2. DNA-based evidence of an LDL-receptor mutation, familial defective apo B-100, or a PCSK9 mutation.
### Appendix 3: Risk Factors for Statin-Associated Muscle Symptoms [1-20]

<table>
<thead>
<tr>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothyroidism</td>
</tr>
<tr>
<td>Multiple or serious co-morbidities, including reduced renal or hepatic function</td>
</tr>
<tr>
<td>Rheumatologic disorders such as polymyalgia rheumatica</td>
</tr>
<tr>
<td>Steroid myopathy</td>
</tr>
<tr>
<td>Vitamin D deficiency</td>
</tr>
<tr>
<td>Primary muscle diseases</td>
</tr>
<tr>
<td>Acute infection</td>
</tr>
<tr>
<td>Organ transplant recipients</td>
</tr>
<tr>
<td>Severe trauma</td>
</tr>
<tr>
<td>HIV</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Major Surgery</td>
</tr>
<tr>
<td>History of creatinine kinase elevation</td>
</tr>
<tr>
<td>History of pre-existing/unexplained muscle/joint/tendon pain</td>
</tr>
<tr>
<td>Genetic factors such as polymorphisms in genes encoding cytochrome P450 isoenzymes or drug transporter</td>
</tr>
<tr>
<td>High level of physical activity</td>
</tr>
<tr>
<td>Dietary effects (excessive grapefruit or cranberry juice)</td>
</tr>
<tr>
<td>Excess alcohol</td>
</tr>
<tr>
<td>Drug abuse (cocaine, amphetamines, heroin)</td>
</tr>
</tbody>
</table>

### Appendix 4: Examples of Drug-drug interactions that may increase the risk of skeletal muscle effects with High-Intensity Statins

<table>
<thead>
<tr>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong inhibitors of CYP 3A4 (e.g., clarithromycin, itraconazole, protease inhibitors)</td>
</tr>
<tr>
<td>Grapefruit Juice</td>
</tr>
<tr>
<td>Cyclosporine</td>
</tr>
<tr>
<td>Gemfibrozil and other fibrates</td>
</tr>
<tr>
<td>Niacin</td>
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<tr>
<td>Colchicine</td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
### Appendix 5: Contraindications to Statin Therapy [10 21]

<table>
<thead>
<tr>
<th>Contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active liver disease, which may include unexplained persistent elevations in hepatic transaminase levels</td>
</tr>
<tr>
<td>History of rhabdomyolysis</td>
</tr>
<tr>
<td>Hypersensitivity</td>
</tr>
<tr>
<td>Nursing Mothers</td>
</tr>
<tr>
<td>Pregnancy</td>
</tr>
</tbody>
</table>

### Appendix 6: Clinical Atherosclerotic Cardiovascular Disease (ASCVD) [1]

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute coronary syndromes</td>
</tr>
<tr>
<td>History of coronary or other arterial revascularization</td>
</tr>
<tr>
<td>History of myocardial infarction</td>
</tr>
<tr>
<td>History of stable or unstable angina</td>
</tr>
<tr>
<td>History of stroke or transient ischemic attack (TIA)</td>
</tr>
<tr>
<td>Peripheral arterial disease presumed to be of atherosclerotic origin</td>
</tr>
<tr>
<td>% LDL-C Lowering</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Low-intensity:</td>
</tr>
<tr>
<td>&lt; 30%</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td>Moderate-intensity: 31% - 49%</td>
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<tr>
<td></td>
</tr>
<tr>
<td>High-intensity:</td>
</tr>
<tr>
<td>≥ 50%</td>
</tr>
</tbody>
</table>

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**Appendix 8: AHA/ACC Definition of Very-High Risk ASCVD** [1]

Very high risk includes a history of multiple major ASCVD events or one major ASCVD event and multiple high-risk conditions.

<table>
<thead>
<tr>
<th>Major ASCVD Events</th>
<th>High-Risk Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent ACS (in past 12 months)</td>
<td>Age ≥ 65 years</td>
</tr>
<tr>
<td>History of MI (other than recent ACS event)</td>
<td>HeFH</td>
</tr>
<tr>
<td>History of ischemic stroke</td>
<td>History of prior coronary artery bypass surgery or percutaneous coronary intervention outside of the major ASCVD event</td>
</tr>
<tr>
<td>Symptomatic Peripheral arterial disease (History of claudication with ABI&lt; 0.85, or previous revascularization or amputation)</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
</tr>
<tr>
<td></td>
<td>Chronic Kidney Disease</td>
</tr>
<tr>
<td></td>
<td>Current Smoking</td>
</tr>
<tr>
<td></td>
<td>Persistently elevated LDL-C (≥ 100 mg/dL) despite maximally tolerated statin therapy and ezetimibe</td>
</tr>
<tr>
<td></td>
<td>History of congestive heart failure</td>
</tr>
</tbody>
</table>

**Cross References**

Genetic Testing for Familial Hypercholesterolemia, Medical Policy Manual, Policy No. 11

Pharmacy Services Medication Policy Manual, Site of Care Review, dru408

**Codes**

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCs</td>
<td>J3490</td>
<td>Drugs unclassified injection</td>
</tr>
</tbody>
</table>
References


18. Leqvio (inclisiran) [Prescribing Information]. East Hanover, NJ: Novartis Pharmaceuticals Corporation; December 2021


**Revision History**

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/18/2022</td>
<td>New policy (effective 6/1/2022). Replaces individual coverage policies for Praluent (alirocumab), dru406 and Repatha (evolocumab), dru407 and includes Leqvio (inclisiran). No change to intent of coverage from previous criteria: limits coverage to confirmed labeled indications with step therapy with low-cost generics. Inclisiran has an additional clinical step with other PCSK9 inhibitors.</td>
</tr>
</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

Topic: betibeglogene autotemcel

Date of Origin: April 15, 2022

Committee Approval Date: March 18, 2022

Next Review Date: June 2022

Effective Date: April 15, 2022

IMPORTANT REMINDER
This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description
Betibeglogene autotemcel is an intravenous (IV) medication that is currently being evaluated by the FDA to treat a rare, genetic blood condition (“transfusion dependent beta thalassemia”).
Policy/Criteria
Most contracts require pre-authorization of Betibeglogene autotemcel prior to coverage.

I. **Continuation of therapy (COT):** Betibeglogene autotemcel may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

   *Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment naïve):** Betibeglogene autotemcel may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A and B below are met.

   A. The patient is a suitable candidate for betibeglogene autotemcel and meets all of the following criteria (1 and 2) below:
      1. No prior use of gene therapy (see Appendix I).
      AND
      2. Patient is fit for therapy, as defined by meeting all the criteria below.
         a. The patient has a Karnofsky or Lansky performance status (KPS) of at least 80 [or ECOG performance status of 0 or 1; the patient is ambulatory and able to carry out work of a light or sedentary nature].
         AND
         b. Patient is clinically stable and eligible for a hematopoietic stem cell transplantation (HSCT) but does NOT have an available HLA-matched donor (provider attestation).
         AND
         c. The patient has adequate and stable kidney, liver, and cardiac function (provider attestation)
         AND
         d. The patient has no active systemic infections (including, but not limited to HCV, HBV, and HIV infection) (provider attestation).

   PLEASE NOTE: Suitability for therapy must be documented in recent clinical documentation (such as in chart notes, laboratory reports), which MUST include evaluation for HSCT [bone marrow transplant BMT]).

   AND

   B. A diagnosis of non-$\beta^0/\beta^0$ transfusion-dependent beta-thalassemia (TDT) when there is clinical documentation that all criteria (1 through 5) below are met:
      1. The diagnosis is genetically confirmed as non-$\beta^0/\beta^0$. 

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
AND
2. The patient is 50 years old or younger at the time of infusion.
AND
3. No prior hematopoietic stem cell transplantation (HSCT).
AND
4. Documented transfusion-dependence, defined as transfusion of at least 8 red blood cell transfusions (RBCTs) in the prior 12-month period.
AND
5. Standard transfusion therapy (RBCTs) and iron chelation therapy (ICT) has been ineffective, not tolerated, or use is contraindicated (as defined in Appendix 2).

III. Administration, Quantity Limitations, and Authorization Period
A. Regence Pharmacy Services considers betibeglogene autotemcel coverable only under the medical benefit (as a provider-administered medication).
B. When pre-authorization is approved, betibeglogene autotemcel may be authorized in quantities of one treatment course per lifetime.
C. Additional infusions of betibeglogene autotemcel will not be authorized.

IV. Betibeglogene autotemcel is considered investigational when used for all other conditions, including, but not limited to:
A. Sickle cell disease (SCD).
B. $^{0}/^{0}$ transfusion dependent beta-thalassemia (TDT) phenotype.

Position Statement
Summary
- Betibeglogene autotemcel is an ex-vivo gene therapy. It adds functional copies of a modified β-globin gene into hematopoietic stem cells using a replication-deficient, self-inactivating lentiviral vector.
- Betibeglogene autotemcel is currently being evaluated by the FDA for use in transfusion-dependent beta thalassemia (TDT). Of note, as of March 2022, betibeglogene autotemcel has not been FDA-approved.
- Betibeglogene autotemcel is a one-time IV infusion. However, it is a very complex, high-cost therapy and requires several phases of administration, extended hospitalization, and extensive supportive care, similar to a HSCT.
- The intent of this policy is to allow for coverage of betibeglogene autotemcel for the indication and dose for which it has been shown to be safe and effective in clinical trials. This includes genetically confirmed non-$^{0}$/$^{0}$ TDT patients that require greater than eight red blood cell transfusions (RBCTs) per year. Aside from transfusion-dependence,
patients must be otherwise clinically stable and healthy enough to receive a hematopoietic stem cell transplant (HSCT).

- Current evidence for betibeglogene autotemcel is limited to small, single-arm, non-randomized trials that evaluated transfusion independence as the primary endpoint. Transfusion independence was achieved in the majority of non-β/β TDT patients; however, the long-term impact of betibeglogene autotemcel on other clinically relevant outcomes, such as overall survival (OS), is unknown at this time.

- Standard of care therapies, including transfusions along with iron chelation therapy (ICT) and HSCT, have proven survival benefit in patients with TDT. However, not all patients with TDT are able to tolerate iron overload-associated adverse events, despite hematologic response from transfusions. In addition, many patients with TDT do not have a HLA-matched donor for HSCT. For these specific populations, the potential benefit of betibeglogene autotemcel may outweigh the risks.

- At this time, there is insufficient evidence to establish the safety and efficacy in other settings, including in the β/β genotype TDT setting. Additional trials are ongoing.

- Betibeglogene autotemcel may be covered for up to one dose per lifetime. There is no data on the safety or efficacy of repeated doses.

**Disease Background** [1]

- Beta thalassemia is a rare, recessive genetic blood disease caused by a mutation in the β-globulin gene. It is characterized by an absence or reduced production of β-globin, an integral component of hemoglobin (Hgb).
  
  * Hemoglobin A (HgbA), the most common form of adult hemoglobin, consists of a tetramer containing alpha (α) and beta (β)-globin subunits.

  * Under normal physiologic conditions, the α/β-globin chain ratio is tightly regulated. However, the absence or reduction in β-globin chains that occurs in beta thalassemia leads to an imbalance in this ratio. This leads to an increase in unbound non-soluble α-globin chains, which causes cellular damage.

- Ineffective erythropoiesis is a hallmark of beta-thalassemia, which leads to anemia and a number of subsequent pathophysiologic complications: hemolysis, hypercoagulability, iron overload, extramedullary hematopoiesis, heart disease, and hepatic cirrhosis.

- Symptoms of beta thalassemia include fatigue, weakness, poor appetite, pallor, jaundice, growth retardation, delayed puberty, abdominal swelling, and bone problems (especially facial bone deformities).

**Clinical Efficacy**

Transfusion Dependent Beta Thalassemia (TDT)

- The safety and efficacy of betibeglogene autotemcel was established primarily on three small, single-arm, non-randomized trials in patients with TDT. All three trials evaluated transfusion independence (TI). [2 3]

  * All patients had genetically confirmed TDT and transfusion-dependent, defined as required ≥ 8 RBCTs per year. In addition, all were ≤ 50 years of age and fit for...
betibeglogene autotemcel therapy (Karnofsky or Lansky performance status ≥ 80, adequate organ function, and no active infections, clinically stable and eligible for a HSCT but without an HLA-matched donor). Patients with severe liver dysfunction or significant cardiac abnormalities (with myocardial iron stores of T2 < 10 msecs) were excluded from trial enrollment.

* TI, the primary endpoint, was defined as a weighted average Hgb ≥ 9 g/dl without any RBCTs for a continuous period of at least 12 months.

* The initial trials (Northstar and HGB-205) enrolled both non-β/β0 TDT (n= 13) and β/β0 TDT (n=9) patients. The majority of patients with non-β/β0 TDT achieved TI [92% (12/13)], whereas only one-third of the patients with β/β0 TDT achieved TI [33% (3/9)]. Given the low response in patients with β/β0 TDT, the subsequent trial (Northstar-2) of betibeglogene autotemcel only investigated use for non-β/β0 TDT. In addition, after this trial, the betibeglogene autotemcel was reformulated with a modified manufacturing process to improve the levels of gene therapy derived HgbA (increased viral vector copy number).

* The subsequent Northstar-2 trial enrolled patients with non-β0/β0 TDT (n=23).
  - At the time of the data cut, 92% of patients achieved TI, over the average follow up time of approximately two years.
  - Of note, this trial used the updated formulation of betibeglogene autotemcel.
  - In the near future, additional follow up data is expected, to evaluate the durability and safety of betibeglogene autotemcel.

* Similar to a HSCT, patients undergo myeloablative chemotherapy prior to betibeglogene autotemcel infusion. Notably, patients in the Northstar-2 trial required a median of 45 days in inpatient hospitalization.

At this time, the safety and efficacy of betibeglogene autotemcel in TDT β/β0 genotypes is unknown. The Northstar-3 trial in patients with TDT β/β0 genotypes is ongoing. Therefore, at this time, the use of betibeglogene autotemcel for TDT β0/β0 genotype is considered investigational.

**Clinical Guidelines/Standard of Care Treatment**

- The treatment of patients with transfusion-dependent beta-thalassemia requires a multidisciplinary approach due to the number of complications associated with the disease.

- Current treatment approaches for patients with beta-thalassemia mainly address the anemia-related symptoms of the disease. The key components of symptomatic care are RBCTs and HSCT (for patients with an HLA-matched donor).

- Currently, HSCT is the only proven cure for beta-thalassemia, with greatest benefit seen in young patients. However, use of HSCT is limited by availability of HLA-matched donors for the stem cell donation.

- Patients with transfusion-dependent beta-thalassemia require regular transfusions (every 2 to 5 weeks) to maintain an acceptable Hgb. Recommended pre-transfusion Hgb
target is 9.0 to 10.5 g/dl to promote normal growth, allow normal physical activities, and suppress bone marrow activity. A higher pre-transfusion Hgb target of 11 to 12 g/dl is recommended for some patients who develop disease complications (e.g., cardiac disease).

- Disease management with RBCTs and HSCT has greatly improved survival in patients with severe forms of beta-thalassemia. However, iron overload-related comorbidities can arise due to frequent RBCTs. This mainly affects the heart, liver, and endocrine organ systems.

  * Without an effective ICT regimen, uncontrolled iron overload increases the risks of heart failure, endocrine damage, liver cirrhosis, and hepatocellular carcinoma.
  * Cardiac complications cause the majority (~70%) of deaths in patients with TDT.

- Iron overload is managed with life-long iron chelation therapy (ICT). ICT therapy with deferoxamine, deferasirox, or deferiprone is titrated to iron levels, in the liver, heart, and blood, as follows:
  * Liver iron concentration (LIC) 2-5mg/g of dry weight
  * Myocardial iron: T2 >20 msecs
  * Serum ferritin < 1000 ng/ml

Safety[^2][^3]

- The most common grade ≥ 3 treatment-emergent adverse events (AEs) seen during pivotal trials were thrombocytopenia, neutropenia, anemia, leukopenia, febrile neutropenia, epistaxis, pyrexia, decreased appetite, and hepatic veno-occlusive disease.

- Of note, the AEs noted above are consistent with those typically seen with the conditioning regimen used prior to betibeglogene autotemcel infusion.
### Appendix 1: Gene Therapies

- betibeglogene autotemcel
- Chimeric Antigen Receptor (CAR) T-cell Therapies (see dru523)

* Including, but not limited to these gene therapies

### Appendix 2:

**Definition of Ineffective/Not tolerated/contraindications to Standard TDT Therapy [transfusion and/or iron chelation therapy (ICT)]**

- Patient is unable to maintain pre-transfusional Hgb goal (≥ 9).
- Transfusion-related iron overload, despite compliant use of ICT. *
- Patient intolerant of ICT or has a documented contraindication to all ICT options.
- Patient intolerant of RBCTs, such as:
  - Transfusion reactions (allergic, hemolytic, alloimmunization), despite management by a Transfusion Medicine specialist.
  - Excessive volume overload, such that RBCTs are not an option.
  - Other: Transfusion-related lung injury (TRALI), transfusion-related GVHD.
- Clinical or laboratory documentation of persistent ineffective erythropoiesis, despite RBCTs. Clinical signs include facial bone changes (frontal bossing and maxillary hyperplasia), poor growth, symptomatic extramedullary hematopoiesis, fatigue and reduced physical functioning.

* Liver iron concentration (LIC) > 5mg/g, myocardial iron (T2) >20 msecs, serum ferritin ≥ 1000 ng/ml

### Cross References

Chimeric Antigen Receptor (CAR) T-cell Therapies, Medication Policy Manual, Policy No. dru523
References


Revision History

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<td>3/18/2022</td>
<td>New policy (effective 6/1/2022). Limits use to TDT patients with non-β0/β0 genotype, that have failed standard transfusion/iron chelation therapy, for whom a hematopoietic stem cell transplantation (HSCT) is appropriate but a matched donor is not available.</td>
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Medication Policy Manual

Policy No: dru700

Topic: Fyarro, nab-sirolimus, protein-bound sirolimus

Date of Origin: July 15, 2022

Committee Approval Date: June 17, 2022

Next Review Date: June 2023

Effective Date: July 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Fyarro (nab-sirolimus, protein-bound sirolimus) is an intravenously administered formulation of sirolimus approved for use in patients with a specific type of tumor [malignant perivascular epithelioid cell tumors (PEComas)].
Policy/Criteria

Most contracts require pre-authorization approval of Fyarro (nab-sirolimus) prior to coverage.

I. Continuation of therapy (COT): Fyarro (nab-sirolimus) may be considered medically necessary for COT when full policy criteria below are met, including quantity limits.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Fyarro (nab-sirolimus) is considered not medically necessary for malignant perivascular epithelioid cell tumor (PEComa).

III. Fyarro (nab-sirolimus) is considered investigational when used for all other conditions.

IV. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Fyarro (nab-sirolimus) coverable only under the medical benefit (as a provider-administered medication).

B. Although the use of Fyarro (nab-sirolimus) is considered “not medically necessary,” if pre-authorization is approved, Fyarro (nab-sirolimus) will be authorized in quantities of up to two, 100mg/m² infusions every 21 days until disease progression.

C. Authorization shall be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement

Summary

- Fyarro (nab-sirolimus), a mechanistic target of rapamycin (mTOR) inhibitor, is considered ‘not medically necessary’ for locally advanced or metastatic malignant perivascular epithelioid cell tumor (PEComa) as it has no proven benefit over much less costly mTOR inhibitor alternatives.

- Fyarro (nab-sirolimus) is a new formulation of sirolimus in which a sirolimus molecule is bound to albumin, a protein found in the blood stream. This alters the pharmacokinetics of sirolimus in the body; however, the clinical relevance of this has not been determined.

- Sirolimus has been available for many years. It is available as an oral tablet and as an injectable prodrug, temsirolimus, which is converted to sirolimus once infused into the body. Both of these products are available as significantly less-costly generics.

- Fyarro (nab-sirolimus) was approved for malignant PEComa based on a small, uncontrolled (it was not directly compared to any other therapy), observational study that looked at the change in tumor size on x-ray as a surrogate endpoint (low quality...
The study found that tumors slowed in growth or decreased in size in some patients who received Fyarro (nab-sirolimus). However, this tumor response has not been shown to predict improved survival or improve symptom control, clinically important outcomes in patients with malignant PEComa.

- Other mTOR inhibitors have been used ‘off-label’ to manage malignant PEComa including oral sirolimus, intravenous temsirolimus, and oral everolimus. The available evidence for these drugs in malignant PEComa is also of low quality. It is based on case studies which also evaluated change in tumor size on x-ray as a surrogate endpoint. As was observed with Fyarro (nab-sirolimus) some patients receiving these medications had slowed growth or decrease in size of their tumors.

- The side effects experienced with Fyarro (nab-sirolimus) are similar to those experienced with other mTOR inhibitors. Because Fyarro (nab-sirolimus) has not been directly compared with other mTOR inhibitors, marketing claims that it may be safer or more effective than other sirolimus formulations cannot be substantiated.

- The National Comprehensive Cancer Network (NCCN) soft tissue sarcoma (STS) guideline lists Fyarro (nab-sirolimus), oral sirolimus, temsirolimus, and everolimus as potential therapies for malignant PEComa.

- Fyarro (nab-paclitaxel) is administered intravenously on days 1 and 8 of each 21-day cycle in a dose of 100 mg/m². It is administered until disease progression or unacceptable toxicity.

- The safety and effectiveness of Fyarro (nab-paclitaxel) for conditions other than malignant PEComa has not been studied.

Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.
**Product Description** [1]

- Fyarro (nab-sirolimus) is a new formulation of sirolimus, an mTOR inhibitor, in which a sirolimus molecule is attached to albumin. This alters the pharmacokinetics of sirolimus in the body; however, the clinical relevance of this has not been determined.

- Sirolimus is also available as an oral tablet, and as an injectable prodrug of sirolimus, temsirolimus. Both of these products have been around for many years and are currently available as significantly less-costly generics.

**Clinical Efficacy**

- Fyarro (nab-sirolimus) was evaluated in a small, non-comparative, observational trial (low quality evidence) in patients with malignant peri-vascular epithelioid cell tumor (PEComa). [2]
  * Patients in the trial had locally advanced (ineligible for surgical resection) or metastatic malignant PEComa.
  * Patients with lymphangioleiomyomatosis (LAM), a specific subtype of PEComa, were excluded from the trial.
  * Patients who received prior therapy with an mTOR inhibitor were also excluded from the trial because resistance to this class of drugs may occur over time.
  * The study evaluated tumor response, a radiographic measure of the size of a tumor, as a surrogate endpoint. Some patients in the study had stabilization or reduction in the size of their tumors while on Fyarro (nab-sirolimus). However, tumor response has not been shown to accurately predict benefit with regard to any clinically relevant outcome such as improved survival or symptom control.

- Other sirolimus formulations (oral sirolimus, intravenous temsirolimus), as well as everolimus (another mTOR inhibitor), have been used ‘off-label’ for treating malignant PEComa. Tumor responses have also been observed with these drugs. Like the evidence for Fyarro (nab-sirolimus) this is also considered to be low quality evidence. [3-6]

- None of the mTOR inhibitors have been directly compared with one another so it is not known if there are any differences in safety or effectiveness among the various products. Furthermore, the generic mTOR products are less costly so provide better value. For this reason, Fyarro (nab-sirolimus) is considered not medically necessary.

**Guidelines** [6]

- The National Comprehensive Cancer Network (NCCN) soft tissue sarcoma (STS) guideline lists Fyarro (nab-sirolimus), oral sirolimus, temsirolimus, and everolimus as potential therapies for malignant PEComa.

**Investigational Uses** [7,8]

- Fyarro (nab-sirolimus) has not been studied in any condition other than malignant PEComa.

- The NCCN compendium does not list any additional uses for the Fyarro formulation of sirolimus (nab-sirolimus).
Safety [1,9,10]
- Common adverse effects (AEs) observed with administration of mTOR inhibitors include stomatitis, rash, gastrointestinal symptoms, infection, and edema.
- There are no studies directly comparing the safety of different mTOR inhibitors with one another, so it is not known whether any one product is better tolerated than another.

Dosing [1]
- Fyarro (nab-paclitaxel) is administered intravenously on days 1 and 8 of each 21-day cycle in a dose of 100 mg/m². It is administered until disease progression or unacceptable toxicity.
- Dose modifications are made for certain AEs including stomatitis, anemia, thrombocytopenia, neutropenia, infections, hypokalemia, hyperglycemia, interstitial lung disease, and hemorrhage.

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<td>HCPCS</td>
<td>J9999</td>
<td>Not otherwise classified, antineoplastic drugs</td>
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References
8. NCCN Drugs and Biologics Compendium (NCCN Compendium) [Updated regularly]. [cited with policy updates and as necessary]. Available from: [https://www.nccn.org/professionals/drug_compendium/content/](https://www.nccn.org/professionals/drug_compendium/content/).
Revision History

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<td>06/17/2022</td>
<td>New Policy (effective 7/15/2022).</td>
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<td>- The use of Fyarro (nab-sirolimus) for malignant PEComa is considered Not Medically Necessary</td>
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<td>- All other uses are considered investigational</td>
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Medication Policy Manual

**Policy No:** dru701

**Topic:** Kimmtrak, tebentafusp-tebn

**Date of Origin:** July 15, 2022

**Committee Approval Date:** June 17, 2022

**Next Review Date:** September 2022

**Effective Date:** July 15, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Kimmtrak (tebentafusp-tebn) is an intravenously administered immunotherapy approved for use in patients with a specific type of cancer (HLA-A*02:01-positive, advanced uveal melanoma).
Policy/Criteria

Most contracts require pre-authorization approval of Kimmtrak (tebentafusp-tebn) prior to coverage.

I. Continuation of therapy (COT): Kimmtrak (tebentafusp-tebn) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Kimmtrak (tebentafusp-tebn) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met:

A. A diagnosis of uveal melanoma, unresectable or metastatic.
   AND

B. The patient is Human Leukocyte Antigen (HLA)-A*02:01-positive.
   AND

C. Kimmtrak (tebentafusp-tebn) will be used as monotherapy.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Kimmtrak (tebentafusp-tebn) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Kimmtrak (tebentafusp-tebn) may be approved for up to four, 68 mcg infusions per month until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Kimmtrak (tebentafusp-tebn) is considered investigational when used for all other conditions, including but not limited to cutaneous melanoma.

Position Statement

Summary

- Kimmtrak (tebentafusp-tebn) is an intravenously administered immunotherapy. It binds to the human leukocyte antigen (HLA)-A*02:01/gp100 complex on the surface of uveal melanoma tumor cells. This helps the bodies T cells recognize, attack, and kill the tumor cells.

- The intent of this policy is to allow coverage of Kimmtrak (tebentafusp-tebn) in the clinical setting described in the coverage criteria above, where it has been evaluated for efficacy, up to the dose shown to be safe in clinical trials.

- The FDA approval of Kimmtrak (tebentafusp-tebn) was based on one trial in HLA-A*02:01-positive adult patients with metastatic uveal melanoma. Patients enrolled in the trial had no prior systemic therapy or liver-directed therapy for their metastatic disease. Kimmtrak (tebentafusp-tebn), administered as monotherapy, was found to improve overall survival (OS) relative to physician’s choice of guideline-recommended therapies. OS is a meaningful clinical outcome in metastatic uveal melanoma which has no cure and is associated with high morbidity and mortality.

- In general, therapies used to treat cutaneous melanoma do not work very well in uveal melanoma due to differences in molecular markers and biology.

- The National Comprehensive Cancer Network (NCCN) uveal melanoma guideline lists Kimmtrak (tebentafusp-tebn) as an option for patients with distant metastatic disease who are HLA A*02:01-positive. For metastases confined to the liver, the guideline recommends considering front-line use of liver-directed palliation for symptomatic patients.

- Kimmtrak (tebentafusp-tebn) may be covered in doses of up to 68 mcg each week, the dose studied in the pivotal trial, until disease progression. The safety and effectiveness of higher doses have not been established.

- The safety and effectiveness of Kimmtrak (tebentafusp-tebn) in other conditions have not been established. This includes metastatic cutaneous melanoma where Kimmtrak (tebentafusp-tebn) has not been formally evaluated.
Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.
- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.
- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.
- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.

**Clinical Efficacy**

- The efficacy of Kimmtrak (tebentafusp-tebn) was studied in a fair quality, open-label, randomized controlled trial in HLA-A*02:01-positive patients with metastatic uveal melanoma. The trial evaluated overall survival (OS) in patients receiving Kimmtrak (tebentafusp-tebn) relative to those receiving Physician’s choice of therapy. [1,2]
  * The patients in the trial had no previous systemic or liver-directed therapy for their metastatic disease; however, prior neoadjuvant or adjuvant therapy for early-stage disease was allowed.
  * Patients received either single-agent Kimmtrak (tebentafusp-tebn) or Physician’s choice of one of the following three therapies: pembrolizumab (Keytruda), ipilimumab (Yervoy), or dacarbazine. Most patients (82%) received pembrolizumab (Keytruda) in the Physician’s choice treatment arm. (Note: Each of the three therapies included in the comparator arm is included in the current NCCN guideline as a potential therapy for metastatic uveal melanoma)
  * Treatment was continued until radiographic disease progression. Subsequent therapy was determined at the investigator’s discretion.

- The median OS was 21.7 months and 16.0 months in the Kimmtrak (tebentafusp-tebn) and Physician’s choice treatment arms, respectively. [1,2] This difference is both statistically and clinically relevant. OS is a clinical outcome of importance in patients with metastatic uveal melanoma, an incurable disease with high morbidity and mortality.
- Note: The pivotal trial excluded patients who had prior liver-directed therapy so it would be unknown if the survival benefit associated with Kimmtrak (tebentafusp-tebn) would extend to this population.
Guideline recommendations [3]
- The current National Comprehensive Cancer Network (NCCN) uveal melanoma guideline lists a clinical trial as the preferred recommendation for patients with metastatic uveal melanoma indicating the lack of a well-defined standard of care in this disease.
- For patients with distant metastatic disease who are HLA A*02:01-positive, Kimmtrak (tebentafusp-tebn) is listed as a treatment option. If metastases are confined to the liver, the guideline recommends considering front-line use of liver-directed palliation for patients who are symptomatic.
- Other recommended therapies for uveal melanoma include medications typically used in the treatment of cutaneous melanoma (e.g., immune checkpoint inhibitors, and cytotoxic chemotherapy). However, the efficacy of these therapies in uveal melanoma is poor due to the differences in molecular markers and biology of these two types of tumors.

Investigational Uses [4]
- There is interest in using Kimmtrak (tebentafusp-tebn) in metastatic cutaneous melanoma in combination with other immunotherapies; however, there are currently no well-controlled, published trials supporting its safety and efficacy in this population.
- There is no evidence to support the use of Kimmtrak (tebentafusp-tebn) in combination with any other therapy in uveal melanoma, or any other condition.
- No studies (enrolling or ongoing) were identified for Kimmtrak (tebentafusp-tebn) outside of the melanoma setting.

Safety [2,5]
- There is a Boxed Warning for Kimmtrak (tebentafusp-tebn) describing the potential for cytokine release syndrome (CRS) when initiating therapy.
- Approximately one in three to four patients who received Kimmtrak (tebentafusp-tebn) in the pivotal trial experienced a dose reduction, interruption, or permanent discontinuation.

Dosing [5]
- Kimmtrak (tebentafusp-tebn) is intravenously administered each week until disease progression.
- The dose of Kimmtrak (tebentafusp-tebn) is slowly increased to minimize the risks of hypotension during/after infusion. The initial three doses should be administered in an appropriate setting where the patient can be monitored for at least 16 hours following infusion. Once it is established that the patient is tolerating the medication, subsequent doses can be given in an appropriate ambulatory care setting.
Cross References

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<td>Keytruda, pembrolizumab</td>
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<td>Yervoy, ipilimumab</td>
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Revision History

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<td>06/17/2022</td>
<td>New Policy (effective 7/15/2022).</td>
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<td></td>
<td>• Limits coverage to HLA-A*02:01-positive patients with unresectable or metastatic uveal melanoma when Kimmtrak (tebentafusp-tebn) is given as monotherapy.</td>
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<td>• Kimmtrak (tebentafusp-tebn) may be covered in doses up to 68 mcg weekly, the dose studied in the pivotal trial and the maximum dose listed in the FDA label.</td>
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*Drug names identified in this policy are the trademarks of their respective owners.*
Medication Policy Manual

**Policy No:** dru702

**Topic:** Xipere, triamcinolone acetonide injectable suspension for suprachoroidal use

**Date of Origin:** April 15, 2022

**Committee Approval Date:** March 18, 2022

**Next Review Date:** March 2023

**Effective Date:** April 15, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

**Benefit determinations should be based in all cases on the applicable contract language.** To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Triamcinolone acetonide injectable suspension for suprachoroidal use (Xipere) is a steroid that is injected directly into the eye (suprachoroidal) to help improve swelling associated with specific eye conditions (as detailed below in the coverage criteria).

**PLEASE NOTE:** Triesence (triamcinolone acetonide injectable suspension for periocular/intravitreal use) is available without pre-authorization.
Policy/Criteria

Most contracts require pre-authorization approval of Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) prior to coverage.

I. Continuation of therapy (COT): Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) may be considered medically necessary for COT when full policy criteria below are met.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients):

Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) confirming that treatment with topical, oral, AND injectable (periocular or intravitreal) corticosteroids (as listed in Table 1) has been:

A. Ineffective after two weeks of therapy.

OR

B. Not tolerated.

OR

C. Use to all forms is documented as medically contraindicated.

Table 1: Lower-cost corticosteroid step therapy

| Topical ophthalmic corticosteroids (variable dose, based on formulation) |
| Oral corticosteroids (such prednisone ≥ 20 mg/day or equivalent for at least 2-4 weeks) |
| Triesence (triamcinolone acetonide injectable), intravitreal OR periocular (such as subconjunctival, subtenon, suprachoroidal, or peribulbar) |

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) will be authorized in quantities up to two of the 40 mg/1mL vials in 24 weeks (based on a dose of 4 mg/0.1 mL every 12 weeks).

C. Authorization shall be reviewed at least every 24 weeks (six months). Clinical documentation (including, but not limited to chart notes) must be provided to
confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) is considered investigational when:
   A. Used for any route of administration other than suprachoroidal.
   B. Used in concomitantly with any other long-acting ophthalmic corticosteroid formulations, such as Ozurdex (dexamethasone implant) or fluocinonide (Retisert, Iluvien, Yutiq) (see Appendix I).

Position Statement

Summary

- Xipere (triamcinolone acetonide injectable suspension for suprachoroidal use) [“Xipere (triamcinolone acetonide suprachoroidal)”] is a corticosteroid injected directly into the suprachoroidal space of the eye that has been studied and approved to reduce the macular edema associated with uveitis.

- The intent of the policy is to allow for coverage of Xipere (triamcinolone acetonide suprachoroidal) when all the best value steroids, including topical ophthalmics, oral, and periocularly/intravitreally injectables, are not an option.

- There is no evidence that Xipere (triamcinolone acetonide suprachoroidal) is safer or more effective than lower-cost steroids, including Triesence (triamcinolone acetonide injectable suspension for periocular/intravitreal use).

- However, Xipere (triamcinolone acetonide suprachoroidal) is significantly more costly than various lower-cost steroids, including triamcinolone acetonide periocular/intravitreal (Triesence). Therefore, the use of Xipere (triamcinolone acetonide suprachoroidal) is considered necessary only when all lower cost steroid treatment options are ineffective, not tolerated, or documented as medically contraindicated.

- As a class, corticosteroids are associated with several adverse events (AEs). Ocular AEs include elevation in intraocular pressure (IOP), glaucoma, and formation of cataracts.

- Xipere (triamcinolone acetonide suprachoroidal) may be covered for up to a 4 mg dose, the dose studied in clinical trials. The safety and effectiveness of higher doses have not been established. The dose may be repeated, if clinically indicated, after 12 weeks.

Background

- There are many formulations of corticosteroids for treatment of uveitis, including but not limited to: [1]
  * Topical ophthalmic: dexamethasone, prednisolone, available as solutions, suspensions, gels, and/or ointments.
  * Oral steroids: prednisone, dexamethasone, methylprednisolone, prednisolone
* Periocular/intravitreal injection: triamcinolone acetonide (Triesence; Kenalog periocular only)
* Ocular steroid implants: Ozurdex (dexamethasone implant), fluocinonide (Retisert, Iluvien, Yutiq)

The use of steroids for ocular inflammatory diseases, including non-infectious uveitis, is considered a mainstay of therapy. Ocular inflammation is managed with a stepwise approach.[2-4]

* Topical steroids +/- a topical non-steroidal anti-inflammatory (NSAID) as usual initial therapy. Patients with posterior uveitis, including panuveitis, are less likely to respond to topical steroids.

* If additional acute inflammation control is needed, systemic steroids (such as oral prednisone) may be added. Guidelines recommend a high dose course (prednisone 1 mg/kg/day or up to 60-80 mg per day) for up to one month.

* Regional administration of steroids (such as triamcinolone injection) may be used to maximize local ocular benefit and minimize systemic steroid exposure and associated adverse events. Steroids are injected periocularly (subconjunctival, subtenon, suprachoroidal, orbital floor, or peribulbar) or intravitreally, dependent on the type and location of the inflammation.

* A systemic immunomodulator (csDMARD, such as mycophenolate mofetil, azathioprine, methotrexate, cyclosporine, or tacrolimus) may be used if there is no response, or worsening, after two to four weeks of oral steroids (e.g., prednisone ≥ 30mg/day or 0.5 mg/kg/day). Initiation of therapy is dependent on several factors, including underlying etiology and severity of the inflammation.

There are existing formulations of triamcinolone acetonide injection for ocular inflammatory conditions, given inside the eye (intraocular, intravitreal) or around the eye (periorbital, periocular). [3,5,6]

* Triesence (triamcinolone acetonide injection) has many years of experience to establish the safety and efficacy for intravitreal use.

* Triamcinolone acetonide injection (Kenalog) is also used in clinical practice in ocular inflammatory conditions, but not specifically labeled for periocular use. Because triamcinolone acetonide injection (Kenalog) contains benzyl alcohol, it cannot be used intravitreally. [8]

* Methylprednisolone (Depot Medrol) is also used for periocular injections (but not intraocular/intravitreal injection). [3]

* However, Triesence (triamcinolone acetonide injection) is the only commercially available injectable steroid for intravitreal use. Other intravitreal steroid formulations include implants.

* Xipere (triamcinolone acetonide suprachoroidal) is injected suprachoroidally, a newer route of administration without significant clinical experience. [6]
Clinical Efficacy

- The efficacy of Xipere (triamcinolone acetonide suprachoroidal) was assessed in a 6-month, randomized, multicenter, double-masked, sham-controlled trial in patients with macular edema (ME) associated with non-infectious uveitis (PEACHTREE; n=160). [7,8]

  * The trial evaluated patients with non-infectious uveitis: anterior-, intermediate-, posterior-, or pan-uveitis.

  * Use of systemic corticosteroids (prednisone ≤ 20 mg/day or equivalent) and/or stable doses of systemic immunomodulatory therapies were allowed during the trial. Concomitant use with other corticosteroids, including topical ocular, intraocular and periocular injection, and intraocular implants, was not allowed at randomization; however, rescue therapy was allowed beginning at week 4.

  * Patients were randomized to Xipere (triamcinolone acetonide suprachoroidal) 4 mg or sham-control, administered at baseline and week 12.

  * The primary efficacy endpoint was the proportion of patients with best corrected visual acuity (BCVA) improved ≥15 letters from baseline after 24 weeks.

  * Xipere (triamcinolone acetonide suprachoroidal) was superior to placebo (sham) for improvement of vision (BCVA) at 24 weeks (47% vs. 16%, respectively). However, several flaws limit utility of the data for use of Xipere (triamcinolone acetonide suprachoroidal) in clinical practice:

    o Patients in the trial were allowed to use other baseline anti-inflammatories, such the true effect of Xipere (triamcinolone acetonide suprachoroidal) is unclear.

    o Given the lack of active comparator, the benefit of Xipere (triamcinolone acetonide suprachoroidal) relative to standard of care oral, topical, or intravitreal corticosteroids and systemic immunomodulatory therapies remains unknown.

    o The trial was of short duration for a chronic condition; durability of response is currently unknown. In addition, any benefit from suprachoroidal steroid administration, such as reduction in cataracts or exacerbation of glaucoma, remains unproven with the available evidence.

- Xipere (triamcinolone acetonide suprachoroidal) has not been compared to any of the other available steroid formulations. Systematic reviews consider the use of existing triamcinolone acetonide formulations (such as Triesence) safe and effective for periocular and intravitreal use. [9,10]

- Xipere (triamcinolone acetonide suprachoroidal) has not been studied in any other causes of ME, such as diabetic ME (DME), retinal vein occlusion (central or branch; CRVO, BRVO), or age-related (wet) macular degeneration (wAMD). The approach to treatment of these non-uveitis causes of macular edema do not use topical and oral steroids as standard treatments.
Investigational Uses

- There are no published clinical trials evaluating the safety or efficacy of Xipere (triamcinolone acetonide suprachoroidal) in any other route of administration aside from suprachoroidally.

Safety \[1, 8, 9\]

- There is no evidence that Xipere (triamcinolone acetonide suprachoroidal) is safer than other corticosteroid options, including periocular/intravitreal triamcinolone acetonide (Triesence).
- Elevations in intraocular pressure (IOP), exacerbation of glaucoma, and cataract development or progression are known adverse events (AEs) with use of intravitreal corticosteroids, resulting from corticosteroid exposure to the anterior segment and the lens. However, the available trial data for Xipere (triamcinolone acetonide suprachoroidal) is insufficient to conclude lower rates of these intraocular complications with the use of suprachoroidal administration.
- At this time, the overall, AE rates with Xipere (triamcinolone acetonide suprachoroidal) appear generally comparable to periocular/intraocular (intravitreal) administered corticosteroids, such as triamcinolone acetonide periocular/intravitreal (Triesence). However, given the absence of a direct comparative trial, any conclusion of superior safety of triamcinolone acetonide suprachoroidal (Xipere) is not possible.

Appendix 1: Duration of action of long-acting ophthalmic corticosteroids

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<th>Formulation</th>
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<td>Iluvien (fluocinonide implant)</td>
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<td>Ozurdex (dexamethasone implant)</td>
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<tr>
<td>Retisert (fluocinonide implant)</td>
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<td>Yutiq (fluocinonide implant)</td>
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References


Revision History

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<td>3/18/2022</td>
<td>Effective 4/15/2022: New policy. Limits coverage to when lower cost forms of corticosteroids were ineffective, including topical ophthalmics, oral, and triamcinolone acetonide injection (periocular or intravitreal).</td>
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Drug names identified in this policy are the trademarks of their respective owners.
Medication Policy Manual

Policy No: dru716

Topic: Enjaymo, sutimlimab

Date of Origin: July 15, 2022

Committee Approval: June 17, 2022

Next Review Date: June 2023

Effective Date: July 15, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Enjaymo (sutimlimab) is an intravenously administered medication used to treat a rare condition, cold agglutinin disease (CAD), to reduce transfusion requirements.
Policy/Criteria

Most contracts require pre-authorization approval of Enjaymo (sutimlimab) prior to coverage.

I. Continuation of therapy (COT): Enjaymo (sutimlimab) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Enjaymo (sutimlimab) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through F below are met.

A. A diagnosis of cold agglutinin disease (CAD), established by or in consultation with a hematologist.

AND

B. Presence of symptomatic anemia related to CAD.

AND

C. At least one documented red blood cell transfusion (RBCT) within the past 6 months.

AND

D. Rituximab-containing regimen used for the treatment of CAD has been ineffective, not tolerated, or use is contraindicated.

AND

E. Hemoglobin (Hgb) level ≤10.0 g/dL

AND

F. Total bilirubin level is above the normal reference range.

III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Enjaymo (sutimlimab) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Enjaymo (sutimlimab) will be authorized be authorized up to the following weight-based dosing:

1. For patients weighing less than 75 kg: 6,500 mg IV weekly for two weeks, then 6,500 mg IV every two weeks thereafter.

2. For patients weighing 75 kg or more: 7,500 mg IV weekly for two weeks, then 7,500 mg IV every two weeks thereafter.
C. Authorization shall be reviewed every 6 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease symptom improvement or positive hematologic response (Hgb level increase or reduction in RBC transfusions).

IV. Enjaymo (sutimlimab) is considered investigational when used for all other conditions, including, but not limited to cold agglutinin syndrome (CAS).

Position Statement

Summary

- Enjaymo (sutimlimab) is new complement inhibitor that may result in a decrease in hemolysis and need for RBC transfusions in patients with symptomatic cold agglutinin disease (CAD). Unlike B-cell targeted therapies (e.g., rituximab), Enjaymo (sutimlimab) does not target the underlying cause of cold agglutinin disease and it does not improve the cold-induced ischemic symptoms of CAD.
- The intent of the policy is to allow coverage of Enjaymo (sutimlimab) for patients with symptomatic CAD with a recent history of red blood cells (RBC) transfusions, after failure of rituximab-containing regimens, up to the dose shown to be safe and effective in clinical trials.
- CAD is a type of autoimmune hemolytic anemia (AIHA), which is triggered by cold temperatures.
- CAD is a heterogenous disease, with a range in severity and symptoms. Some CAD patients are asymptomatic with no treatment required, while others present with severe anemia and other cold-induced symptoms. Patients with symptomatic disease and a dependence on RBC transfusions may see benefit with Enjaymo (sutimlimab), based on a reduction in hemolysis markers. However, Enjaymo (sutimlimab) does not affect production of cold agglutinins or reduce resulting cold-ischemic symptoms of CAD.
- In symptomatic patients, CAD results in both hemolytic anemia (caused by complement pathway activation) and cold-induced ischemic symptoms (due to RBC agglutination).
- During clinical trials, Enjaymo (sutimlimab) use resulted in a clinical response in 54.2% of CAD patients.
- Enjaymo (sutimlimab) was only studied in symptomatic CAD patients with a history of RBC transfusions in the past 6 months and clinical laboratory markers of hemolytic anemia (Hgb \( \leq 10.0 \) g/dL, total bilirubin \( \geq \) ULN etc.). The safety and efficacy in asymptomatic or less active disease is unknown.
- Rituximab-based regimens are considered first-line therapy, as they address all aspects of the disease pathophysiology (hemolysis and cold-induced ischemic symptoms), by reduction in the production of cold agglutinins by targeting the B-cells.
- In contrast, Enjaymo (sutimlimab) only addresses hemolysis-related symptoms and must be taken indefinitely. Rituximab can be used for a short period of time, provides long-term benefits, and is a significantly less costly treatment option.
- Additional controlled trials are needed to assess the long-term safety and efficacy of Enjaymo (sutimlimab), including improvement in quality of life (QOL), overall survival, impact on long-term complications, or benefit over existing treatment options.
- Enjaymo (sutimlimab) may be covered in doses up to 6500 mg or 7,500 mg IV every 2 weeks, depending on weight. These are the doses at which it has been shown to be safe and effective.

**Disease Background**
- CAD accounts for ~15% of total AIHA cases and is the result of an indolent, clonal B-cell lymphoproliferative disorder that leads to an overproduction of cold agglutinins, which are IgM autoantibodies that target erythrocytes.
- When exposed to cold temperatures and internal temperatures drop below 37º C, cold agglutinins bind to the “I” antigen on RBCs. This triggers agglutination and activates the classic complement pathway when the IgM-antigen complex binds to the C1 complement complex.
- Secondary cold agglutinin syndrome (CAS) occurs when cold agglutinins arise due to an underlying condition. This syndrome is managed differently than CAD and Enjaymo (sutimlimab) would not be used in this population.

**Clinical Efficacy**

The safety and efficacy of sutimlimab in CAD was established based on one phase 3, multi-center, open-label, single-arm trial (CARDINAL) in patients with symptomatic CAD (n=24). Although sutimlimab improved hemolysis markers in half of treated patients with symptomatic CAD, sutimlimab does not reduce production of cold agglutinins, the cause of the hemolysis, nor reduce associated cold-ischemic symptoms of CAD.

- All patients had symptomatic CAD, laboratory findings consistent with hemolysis, and a history of RBC transfusions in the last six months.
  * Symptoms for enrollment included one of the following within the last 3 months: symptomatic anemia, acrocyanosis, Raynaud’s syndrome, hemoglobinuria, disabling circulatory symptoms, or a major adverse vascular event.
  * Subjects were required to have a Hgb level ≤10 g/dL and bilirubin above the normal reference range.
- A majority of enrolled patients (62%; n=15) had been treated with rituximab in the past 5 years [monotherapy (n=12), rituximab/bendamustine (n=4), and rituximab/fludarabine (n=2)].
- The primary endpoint was treatment response at 26 weeks, based on a composite endpoint of hemolysis markers, defined as meeting all of the following:
  * No blood transfusions from Week 5 through Week 26.
  * No additional treatments started for CAD management.
  * Hgb level ≥12 g/dL (mean value from Weeks 23, 25, and 26) or Hgb increased ≥ 2 g/dL from baseline.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
- Treatment response rate was 54.2%. Although sutimlimab reduced symptomatic CAD, based on hemolysis markers, sutimlimab does not reduce cold agglutinin production, the underlying cause of the hemolysis.
- Due to the short duration of the trial (26 weeks), it is unknown if sutimlimab will result in a clinically meaningful improvement in long-term QOL, overall survival, or a reduction in chronic complications.

**Standard of Care Treatment** [2-5]
Management of CAD includes a variety of therapies and modalities to manage and prevent disease-related symptoms.
- Preventative: Cold temperature avoidance is effective at reducing cold-induced symptoms and hemolysis.
- Anemia management:
  * RBC transfusions are a valuable tool to manage symptomatic anemia.
  * Plasmapheresis can be used for acute critical hemolysis, to immediately remove cold agglutinins from the body.
- Reduction of cold agglutinins:
  * Short-term use of B-cell targeted therapies, such as rituximab-containing regimens) are considered first-line treatment to reduce the production of cold agglutinins by targeting the B-cells responsible for their production
  * Rituximab +/- bendamustine or fludarabine has the most evidence for efficacy and is most commonly used.
- Bind complement:
  * Anti-complement therapies target the classic complement pathway that leads to hemolysis. This can reduce the hemolysis markers and transfusion requirements and symptoms of anemia.
  * Of note, targeting this pathway does not impact the cells producing the cold agglutinins. Therefore, anti-complement therapies must be taken indefinitely and are not expected to improve cold-induced symptoms, such as acrocyanosis.

**Safety** [6]
- During clinical trials of sutimlimab, the most frequent adverse events (>10% incidence) were respiratory tract infection, viral infection, diarrhea, dyspepsia, cough, arthralgia, and peripheral edema.

**Dosing** [6]
- Sutimlimab is administered at a dose of 6,500 mg IV weekly for two weeks, then every two weeks thereafter for patients weighing less than 75 kg. The dose is increased to 7,500mg, at the same dosing frequency, for those weighing over 75kg.
- Efficacy and safety of dosing of sutimlimab in CAD patients in doses higher than mentioned above has not been established.
Cross References

Products with Therapeutically Equivalent Biosimilars/Reference Products, Medication Policy Manual, Policy No. dru620

References


6. Enjaymo® (sutimlimab-jome) [package insert]. Waltham, MA: Bioverativ USA; 02/2022

Revision History

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<td>6/17/2022</td>
<td>New policy (effective 9/1/2022). Limits coverage to patients with symptomatic cold agglutinin disease (CAD) with recent need for RBC transfusions despite prior treatment with rituximab.</td>
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Medication Policy Manual

**Topic:** Opdualag, nivolumab-relatlimab-rmbw

**Policy No:** dru718

**Date of Origin:** July 15, 2022

**Committee Approval Date:** June 17, 2022

**Next Review Date:** September 2022

**Effective Date:** July 15, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

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**Description**

Opdualag (nivolumab-relatlimab-rmbw) is an intravenously administered immunotherapy approved for use in patients with advanced melanoma.
Policy/Criteria

Most contracts require pre-authorization approval of Opdualag (nivolumab-relatlimab-rmbw) prior to coverage.

I. **Continuation of therapy (COT):** Opdualag (nivolumab-relatlimab-rmbw) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND there is documentation that the medication was covered by another health plan. Examples of documentation include the coverage approval letter from the previous health plan or paid claim.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
      1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
      AND
      2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   OR

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Opdualag (nivolumab-relatlimab-rmbw) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A, B, and C below are met:

   A. A diagnosis of **melanoma,** unresectable or metastatic.
   AND

   B. No prior systemic therapy in the advanced disease setting.
   AND

   C. Opdualag (nivolumab-relatlimab-rmbw) will be used as monotherapy.
III. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Opdualag (nivolumab-relatlimab-rmbw) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, Opdualag (nivolumab-relatlimab-rmbw) may be approved for up to one, 480 mg/160 mg infusion per month until disease progression.

C. Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, including disease stability or improvement relative to baseline symptoms.

IV. Opdualag (nivolumab-relatlimab-rmbw) is considered investigational when used for all other conditions.

Position Statement

Summary

- Opdualag (nivolumab-relatlimab-rmbw) is an intravenously administered immunotherapy. It is a combination of nivolumab, a programmed death receptor-1 (PD-1) blocking antibody and relatlimab, a lymphocyte activation gene-3 (LAG-3) blocking antibody. Blocking these pathways inhibits tumor growth and promotes tumor regression.

- The intent of this policy is to allow coverage of Opdualag (nivolumab-relatlimab-rmbw) in the clinical setting described in the coverage criteria above, where it has been evaluated for efficacy, up to the dose shown to be safe in clinical trials.

- The FDA approval of Opdualag (nivolumab-relatlimab-rmbw) was based on a fair quality randomized controlled trial in patients with unresectable or metastatic melanoma who had no prior systemic therapy for their advanced disease. Opdualag (nivolumab-relatlimab-rmbw), when administered as monotherapy, was found to improve progression-free survival (PFS) relative to Opdivo (nivolumab).

- PFS has not been proven to be an accurate predictor of OS or any other clinically relevant endpoint in advanced melanoma. Improved overall survival (OS) is the clinical outcome of interest in this disease setting. There is currently no information to determine if Opdualag (nivolumab-relatlimab-rmbw) improves OS relative to Opdivo (nivolumab) or any other melanoma therapy.

- Seventy-five percent of patients enrolled in the pivotal trial had tumors with LAG-3 expression ≥ 1%. Both an early-stage trial and a subgroup analysis from the phase 2/3 pivotal trial suggest that LAG-3 expression ≥ 1% is associated with improved tumor response to Opdualag (nivolumab-relatlimab-rmbw) as compared with LAG-3 expression < 1%. Whether this has any application in the clinical setting is not yet known.

- The National Comprehensive Cancer Network (NCCN) cutaneous melanoma guideline lists Opdualag (nivolumab-relatlimab-rmbw) among its recommendations for front-line therapy.

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage.

Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
treatment of unresectable or metastatic melanoma when no BRAF V600 mutation is present. It is not among recommendations for subsequent-line therapy of advanced melanoma.

- Opdualag (nivolumab-relatlimab-rmbw) may be covered in doses up to 480 mg/160 mg each month, the dose studied in the pivotal trial, until disease progression. This dose was established based on a weight of 40 kg or more. A dose for patients less than 40 kg has not been established. The safety and effectiveness of higher doses have not been established.

- The safety and effectiveness of Opdualag (nivolumab-relatlimab-rmbw) in conditions other than unresectable or metastatic melanoma have not been established.

**Regence Pharmacy Services performs independent analyses of oncology medication evidence, to establish coverability per the contracts with the health plan.**

- Most contracts define coverability based on established clinical benefit in published, peer-reviewed literature, along with consideration of regulatory status.

- FDA approval does not in itself establish medical necessity, as unpublished, low-quality evidence, including exploratory analyses and unvalidated surrogate endpoints, may be used as the basis of approval. Regulatory approval may or may not reflect clinical benefit relative to standard of care and the recommendations of expert clinical advisors such as the Oncologic Drugs Advisory Committee (ODAC). FDA approvals generally do not consider cost compared to established therapies, or value to members.

- Likewise, NCCN clinical practice guidelines assignment of a recommendation (category 1, 2a, or 2b) does not necessarily establish medically necessity. NCCN recommendations are inconsistently supported by published, peer-reviewed literature and do not uniformly consider value of new therapies relative to existing potentially higher-value treatment options, considering effectiveness, safety, and cost.

- Medication coverage criteria are developed based on the ‘medical necessity’ assessment, as described above.

**Regence Pharmacy Services analysis and coverage policy may differ from FDA labeled indication and/or NCCN clinical practice guidelines.**

**Clinical Efficacy**

- The efficacy of Opdualag (nivolumab-relatlimab-rmbw) was studied in a fair quality randomized controlled trial in patients with previously untreated, unresectable metastatic melanoma. The trial compared Opdualag (nivolumab-relatlimab-rmbw) with Opdivo (nivolumab) and evaluated progression-free survival (PFS) as the primary endpoint. [1]  
  * Patients in the trial had no prior systemic therapy for their advanced disease. Approximately 8% of the population had prior adjuvant therapy which may have included immunotherapy or BRAF/MEK inhibitors; however, adjuvant therapy must have been completed at least 6 months prior to the current recurrence.

  * Approximately 90% of patients had metastatic disease and all had good performance status.

  * All patients were required to have a tumor tissue sample available for biomarker analysis. Randomization was stratified by PD-L1 expression, LAG-3 expression,
BRAF status, and tumor stage.

* Seventy-five percent of tumors had LAG-3 expression of at least 1%. In an earlier phase 1 study, a greater than 3-fold increase in tumor response to Opdualag (nivolumab-relatlimab-rmbw) was observed when LAG-3 expression was ≥ 1% versus < 1%

- Median PFS was improved with Opdualag (nivolumab-relatlimab-rmbw) relative to Opdivo (nivolumab); however, there is no mature overall survival (OS) data available. OS is the clinical outcome of interest in this population. PFS has not been proven to be an accurate predictor of OS benefit. More information is needed before a better estimate of net health benefit can be made. [1]

- Additionally, similar to what was observed in an earlier phase 1 trial (Study CA224020), a subgroup analysis appears to show that tumors with a LAG-3 expression ≥ 1% show a better response to Opdualag (nivolumab-relatlimab-rmbw) than those with LAG-3 expression < 1%. [1] Whether this has any application in a clinical setting is yet to be determined.

**Guideline recommendations [2]**

- The current National Comprehensive Cancer Network (NCCN) cutaneous melanoma guideline lists Opdualag (nivolumab-relatlimab-rmbw) among front-line options for unresectable or metastatic melanoma when a BRAF V600 sensitizing mutation is not present.

- Other therapies with higher levels of evidence include Opdivo (nivolumab), with or without concomitant Yervoy (ipilimumab), and Keytruda (pembrolizumab).

- Opdualag (nivolumab-relatlimab-rmbw) is not listed among the recommendation for:
  * Subsequent-line treatment of unresectable or metastatic melanoma
  * Uveal melanoma (the pivotal trial excluded patients with uveal melanoma)

**Investigational Uses [3]**

- There is interest in using Opdualag (nivolumab-relatlimab-rmbw) in other tumors that express LAG-3; however, there are currently no well-controlled, published trials supporting its safety and efficacy in other cancers at this time.

- There is no evidence to support the use of Opdualag (nivolumab-relatlimab-rmbw) in combination with any other melanoma therapy.

**Safety [4,5]**

- Qualitatively, the adverse effects reported in the Opdualag (nivolumab-relatlimab-rmbw) clinical trial were similar to those reported with Opdivo (nivolumab). However, as relatlimab is a new entity and safety experience is limited, it cannot be ruled out that additional harms may become known in the future.

- Approximately one in two to three patients receiving Opdualag (nivolumab-relatlimab-rmbw) in the pivotal trial experienced a dose interruption, or permanent discontinuation due to AEs.

**Dosing [4]**

- Opdualag (nivolumab-relatlimab-rmbw) is intravenously administered every four weeks until disease progression.
Opdualag is available in a fixed combination of nivolumab 240 mg and relatlimab 80 mg per 20 ml. The dose for patients with a weight of at least 40 kg is 480 mg/160 mg IV every 4 weeks until disease progression. No dose has been established for patients weighing less than 40 kg.

Cross References

| Keytruda, pembrolizumab, Medication Policy Manual, Policy No. dru367 |
| Opdivo, nivolumab, Medication Policy Manual, Policy No. dru390 |
| Yervoy, ipilimumab, Medication Policy Manual, Policy No. dru238 |

References


Revision History

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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tr>
<td>06/17/2022</td>
<td>New Policy (effective 7/15/2022).</td>
</tr>
<tr>
<td></td>
<td>• Limits coverage to patients with unresectable or metastatic melanoma when Opdualag (nivolumab-relatlimab-rmbw) is given as monotherapy and there has been no prior systemic therapy in the advanced disease setting.</td>
</tr>
<tr>
<td></td>
<td>• Opdualag (nivolumab-relatlimab-rmbw) may be covered in doses up to 480 mg/160mg monthly, the dose studied in the pivotal trial and the maximum dose listed in the FDA label.</td>
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</tbody>
</table>

Drugs names identified in this policy are the trademarks of their respective owners.
UMP Medication Policy Manual

Policy No: dru900

Topic: Provider-administered drugs for chronic inflammatory diseases (for UMP plans)

Date of Origin: January 1, 2020

• Actemra (tocilizumab intravenous)
• Cimzia (certolizumab lyophilized powder vial)
• Cosentyx (secukinumab lyophilized powder vial)
• Entyvio (vedolizumab)

• Ilumya (tiltrakizumab-asmn)
• Orencia (abatacept intravenous)
• Simponi Aria (golimumab intravenous)
• Stelara (ustekinumab)

Committee Approval Date: May 23, 2022

Next Review Date: March 2023

Effective Date: July 1, 2022

IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Therapies included in this policy are used to treat a group of diseases that may be caused or worsened by an overactive immune system such as rheumatoid arthritis, psoriasis, and ulcerative colitis.

*This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA's Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.*
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## Disease Modifying Antirheumatic Drug (DMARD)

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<th>Non-tumor necrosis factor inhibitor (non-TNF inhibitor) biologics</th>
<th>Conventional synthetic DMARDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL-6 Inhibitors</td>
<td>IL-17 Inhibitors</td>
<td>JAK Inhibitors</td>
</tr>
<tr>
<td>IL 12/23 and IL-23 Inhibitors</td>
<td>Integrin inhibitors</td>
<td>PDE-4 Inhibitors</td>
</tr>
<tr>
<td>Other mechanisms of action: IL-1 rituximab, abatacept</td>
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</tbody>
</table>

### Drug List:

#### TNF inhibitors
- Humira (adalimumab)
- Adalimumab biosimilars (Amjevita, Cyltezo, Hadlima, Hulio, Hyrimoz)
- Cimzia (certolizumab pre-filled syringes for self-administration or vials for provider-administration)
- Enbrel (etanercept)
- Etanercept biosimilars (Erelzi, Eticovo)
- Simponi/Simponi Aria (golimumab) IV or SC
- Remicade (infliximab)
- Infliximab biosimilars (Inflectra, Ixifi, Renflexis, Avsola, unbranded product)

#### IL-6 inhibitors
- Kevzara (sarilumab)
- Actemra (tocilizumab) IV or SC

#### IL-17 Inhibitors
- Siliq (brodalumab)
- Taltz (ixekizumab)
- Cosentyx (secukinumab) pre-filled syringes for self-administration or vials for provider-administration

#### IL-23 inhibitors
- Tremfya (guselkumab)
- Skyrizi (risankizumab)
- Ilumya (tildrakizumab-asmn)

#### IL-12, IL-23 inhibitors
- Stelara (ustekinumab)

#### Integrin Inhibitors
- Tysabri (natalizumab)
- Entyvio (vedolizumab)

#### Other non-TNF inhibitor biologics
- T-lymphocyte inhibitor
  - Orencia (abatacept) IV or SC
- B-lymphocyte depleter
  - Rituxan (rituximab)
- IL-1
  - Kineret (anakinra)
  - Ilaris (canakinumab)

#### JAK Inhibitors
- Olumiant (baricitinib)
- Tofacitinib (Xeljanz/Xeljanz XR)
- Rinvoq (upadacitinib)

#### Other targeted synthetic DMARDS (PDE-4 Inhibitor)
- Otezla (apremilast)

#### Conventional immunomodulators (also referred to as conventional synthetic DMARDs) (see appendix 2, for complete list)
- Imuran (azathioprine)
- 6-MP (6-mercaptopurine)
- MTX (methotrexate)
- SSZ (sulfasalazine)
Policy/Criteria

Most contracts require pre-authorization approval of drugs for chronic inflammatory diseases prior to coverage.

I. **For self-administered therapies**, please refer to coverage policies administered by Washington State Rx Services.

II. **Continuation of therapy (COT):** Provider-administered therapies in this policy may be considered medically necessary for COT when criterion A, B, or C **AND** D below is met.

A. For diagnoses **NOT** listed in the coverage criteria below, full policy criteria must be met for coverage.

**OR**

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

1. The patient was established on therapy prior to current health plan membership **AND** attestation that the medication was covered by another health plan.

**AND**

2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

**OR**

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

**AND**

D. Site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

**Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

III. **New starts (Treatment-naive patients):** Provider-administered therapies in the policy may be considered medically necessary when the criteria below are met.
A. **Acute Graft Versus Host Disease, Prophylaxis**

1. **Provider-administered** therapies may be considered medically necessary when criteria a through c below are met.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
<th></th>
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<tbody>
<tr>
<td>Preferred Self-Administered Options&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>None</td>
</tr>
<tr>
<td>Non-Preferred Self-Administered Options&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>None</td>
</tr>
<tr>
<td>Provider-Administered Options</td>
<td>Orencia (abatacept) IV</td>
</tr>
</tbody>
</table>

a. Abatacept will be used for **prophylaxis of acute graft versus host disease** (aGVHD).

AND

b. Patient will undergo a hematopoietic cell transplant (HCT) from an unrelated donor (either 8/8 HLA matched or 7/8 HLA mismatch).

AND

c. Abatacept will be used in combination with methotrexate and a calcineurin inhibitor (cyclosporine or tacrolimus).
B. Ankylosing Spondylitis (AS)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered therapies may be considered medically necessary when criteria a and b below are met.

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<tr>
<th>FOR UMP MEMBERS:</th>
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<tr>
<td>Preferred Self-Administered Options</td>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<tr>
<td>Non-Preferred Self-Administered Options</td>
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<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td>Infliximab Products</td>
</tr>
<tr>
<td>Preferred: Inflectra (infliximab)</td>
</tr>
<tr>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product</td>
</tr>
<tr>
<td>Other Provider-Administered Options</td>
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</tbody>
</table>

a. A diagnosis of axial SpA, including ankylosing spondylitis (AS) is established by or in consultation with a specialist in rheumatology.

AND

b. There is clinical documentation that treatment with at least TWO preferred self-administered therapies were not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to, those listed in Appendix 6).
C. Antibody Mediated Rejection (AMR) of Transplant (Solid Organ)

1. Provider-administered therapies may be considered medically necessary when criteria a below is met.

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<th>FOR UMP MEMBERS:</th>
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<tr>
<td>Preferred Self-Administered Options</td>
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<tr>
<td>Non-Preferred Self-Administered Options</td>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td>Provider-Administered Options</td>
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</tbody>
</table>

a. Medication will be used for prevention of antibody (Ab)-mediated rejection: Prior to solid organ transplant and in the peri-operative period, for patients at high risk for Ab-mediated rejection, including highly sensitized patients, and those receiving an ABO-incompatible organ OR Treatment of antibody-mediated rejection (a.k.a. vascular rejection, humoral rejection): following solid organ transplant and confirmed by either biopsy or presence of panel reactive antibodies (PRAs).

AND

b. Treatment with immunoglobulin (IVIG), plasma exchange/pheresis (PLEX), and rituximab has been ineffective or is contraindicated.
D. Non-Radiographic Axial Spondyloarthritis (NR-axSpA)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. Provider-administered therapies may be considered medically necessary when criteria a and b below are met.

3. Provider-administered biosimilar reference products may be considered medically necessary when criteria a and b below are met.

FOR UMP MEMBERS:

<table>
<thead>
<tr>
<th>Preferred Self-Administered Options</th>
<th>Cosentyx (secukinumab)</th>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<table>
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<tr>
<th>Non-Preferred Self-Administered Options</th>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<table>
<thead>
<tr>
<th>Provider-Administered Options</th>
<th>Cimzia (certolizumab) vial, Cosentyx (secukinumab) vial</th>
</tr>
</thead>
</table>

a. A diagnosis of non-radiographic axial SpA (NR-axSpA) is established by or in consultation with a specialist in rheumatology.

AND

b. Treatment with at least ONE preferred self-administered therapy was not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to, those listed in Appendix 6).
E. Chronic Plaque Psoriasis (PsO)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered therapies may be considered medically necessary when criteria a through c below are met.

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<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Humira (adalimumab), Otezla (apremilast), Enbrel (etanercept), Cosentyx (secukinumab), Stelara (ustekinumab)</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Refer to Washington State Rx Services.</td>
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<tr>
<td><strong>Infliximab Products</strong>&lt;br&gt;Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</td>
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</tr>
<tr>
<td><strong>Other Provider-Administered Options</strong></td>
<td>Cimzia (certolizumab) vial, Ilumya (tildrakizumab-asnm), Cosentyx (secukinumab) vial, Stelara (ustekinumab)</td>
</tr>
</tbody>
</table>

- A diagnosis of **chronic plaque psoriasis** (PsO) is established by or in consultation with a specialist in dermatology or rheumatology.

AND

- One of the following criterion i, ii or iii below are met.
  - i. There is involvement of $\geq 10\%$ of the body surface area (BSA) OR there is significant functional disability due to PsO.

  OR

  - ii. Treatment with phototherapy (for example, UVB) or photochemotherapy was not effective, not tolerated, or is contraindicated (such as lesions on the face, scalp, hands, feet, nailbeds, or groin area; see Appendix 1).

  OR

  - iii. Treatment with at least one conventional agent was not effective after at least 6 to 12 weeks of treatment, or not tolerated, unless all are contraindicated. Conventional agents for the treatment of PsO include: acitretin, anthralin, calcipotriene, calcitriol, coal tar products, cyclosporine, methotrexate, pimecrolimus, tacrolimus, tazarotene, or a topical corticosteroid.

AND
c. There is clinical documentation that treatment with **at least TWO** preferred self-administered therapies were not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in *Appendix 6*).
F. Crohn’s Disease (CD)

1. **Site of Care Requirements:** For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408. Stelara (ustekinumab) does not require Site of Care Review]

2. **Diagnostic Criteria:** A diagnosis of Crohn’s disease (CD) established by or in consultation with a specialist in gastroenterology.

3. **Severity Criteria:** Either criterion a or b below are met.
   a. At least one of the following criteria 1 through 6 below are met.
      1. Fistulizing Crohn’s disease.
      2. Previous hospitalization for Crohn’s disease.
      3. Extensive anatomic involvement.
      5. Prior surgical resection.
      6. Stricturing and/or penetrating behavior.
   
   OR
   
   b. Acute treatment of an exacerbation when at least one of criterion 1, 2, or 3 below, is met.
      1. Treatment with an adequate course of corticosteroids (for example, prednisone 40 to 60 mg/day, oral budesonide 9 mg/day, or budesonide rectal for 7 to 14 days) has been ineffective or is contraindicated.
      2. The patient has been unable to taper an adequate course of corticosteroids without experiencing worsening of disease.
      3. The patient is experiencing breakthrough disease (e.g., active disease flares) while stabilized for at least 8 weeks on a conventional immunomodulator. Conventional immunomodulators for CD include azathioprine, mercaptopurine, methotrexate, balsalazide, mesalamine, cyclosporine, and sulfasalazine.

**FOR UMP MEMBERS:**

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Products</th>
<th>Criteria Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Self-Administered Options</td>
<td>• Humira (adalimumab) • Stelara (ustekinumab)</td>
<td>Refer to coverage policies administered by Washington State Rx Services.</td>
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<tr>
<td>Non-Preferred Self-Administered Options</td>
<td>Refer to Washington State Rx Services.</td>
<td>Refer to coverage policies administered by Washington State Rx Services.</td>
</tr>
</tbody>
</table>
| Preferred Provider-Administered Options | Entyvio (vedolizumab) | 1. Site of Care Requirements  
2. Diagnostic Criteria  
3. Severity Criteria |
| Inflectra (infliximab) | Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |
| Non-Preferred Provider-Administered Options | • Cimzia (certolizumab) vial  
• Stelara (ustekinumab)  
1. Site of Care Requirements  
2. Diagnostic Criteria  
3. Severity Criteria  
4. Treatment with at least TWO preferred self-administered therapies has been not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in Appendix 6). |
| Non-preferred infliximab Products | • Infliximab biosimilars (Avsola, Ixifi, Renflexis)  
• Remicade (infliximab)  
• Unbranded Janssen infliximab product  
Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |
G. Cryopyrin-Associated Periodic Syndrome (CAPS)

1. For self-administered therapies, please refer to coverage policies administered by Washington State Rx Services.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong> (Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong> (Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td><strong>Provider-Administered Options</strong></td>
</tr>
</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. 
Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
H. Cytokine Release Syndrome (CRS)

1. Provider-administered therapies may be considered medically necessary when criteria a below is met.

FOR UMP MEMBERS:

<table>
<thead>
<tr>
<th>Preferred Self-Administered Options</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Preferred Self-Administered Options</th>
<th>Refer to Washington State Rx Services.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provider-Administered Options</th>
<th>Actemra (tocilizumab) IV</th>
</tr>
</thead>
</table>

a. Medication will be used for chimeric antigen receptor (CAR) T cell-induced cytokine release syndrome (CRS).
I. **Enthesitis-related Arthritis (ERA)**

1. **For provider-administered therapies, site of care administration requirements must be met** [refer to Medication Policy Manual, Site of Care Review, dru408].

2. **Provider-administered therapies may be considered medically necessary when criteria a below is met.**

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td><strong>Provider-Administered Options</strong></td>
<td>Cosentyx (secukinumab) vial</td>
</tr>
</tbody>
</table>

a. A diagnosis of **enthesitis-related arthritis** (ERA) is established by or in consultation with a specialist in rheumatology.
J. Giant Cell Arteritis (GCA)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. Provider-administered therapies may be considered medically necessary when criteria a and b below are met.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
<th>Actemra (tocilizumab) SC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Actemra (tocilizumab) IV</td>
</tr>
<tr>
<td><strong>Provider-Administered Options</strong></td>
<td>Actemra (tocilizumab) IV</td>
</tr>
</tbody>
</table>

a. A diagnosis of giant cell arteritis (GCA) when established by or in consultation with a specialist in rheumatology

AND

b. Requested medication will be given in combination with high-dose corticosteroids (prednisone 20 to 60 mg per day or equivalent) unless contraindicated or not tolerated.
K. **Hidradenitis Suppurativa (HS)**

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong></td>
</tr>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong></td>
</tr>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td><strong>Infliximab Products</strong></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

c. A diagnosis of **hidradenitis suppurativa** (HS) is established by or in consultation with a specialist in dermatology.

AND
d. Treatment with at least one conventional agent was not effective after 12 weeks, not tolerated, or all are contraindicated. Conventional agents for the treatment of HS include topical antibiotics, systemic antibiotics (e.g., oral tetracyclines, clindamycin, rifampin, moxifloxacin, metronidazole), intralesional corticosteroids (e.g., triamcinolone), hormonal therapies (e.g., oral contraceptives, spironolactone), cyclosporine, finasteride, metformin, or oral retinoids.
L. Immune-Mediated Colitis

1. Provider-administered therapies may be considered medically necessary when criteria a and b below are met.

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

<table>
<thead>
<tr>
<th>Preferred Self-Administered Options</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<table>
<thead>
<tr>
<th>Non-Preferred Self-Administered Options</th>
<th>Refer to Washington State Rx Services.</th>
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<tbody>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Infliximab Products</th>
<th>Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preferred: Inflectra (infliximab)</td>
</tr>
<tr>
<td></td>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provider-Administered Options</th>
<th>Entyvio (vedolizumab)</th>
</tr>
</thead>
</table>

a. A diagnosis of colitis due to Yervoy (ipilimumab) or an anti-PD1 agent [e.g. Tecentriq (atezolizumab), Opdivo (nivolumab), or Keytruda (pembrolizumab)].

AND

b. Treatment with an adequate course of corticosteroids (for example, prednisone 40 to 60 mg/day, oral budesonide 9 mg/day, or budesonide rectal for 7 days) has been ineffective or is contraindicated.
M. Polyarticular Juvenile Idiopathic Arthritis (PJIA)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered therapies may be considered medically necessary when criteria a through c below are met.

<table>
<thead>
<tr>
<th>Preferred Self-Administered Options</th>
<th>Humira (adalimumab), Enbrel (etanercept)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Preferred Self-Administered Options</td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td>Infliximab Products</td>
<td>Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</td>
</tr>
<tr>
<td>Preferred: Inflectra (infliximab)</td>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product</td>
</tr>
<tr>
<td>Other Provider-Administered Options</td>
<td>Orencia (abatacept) IV, Simponi Aria (golimumab IV), Actemra (tocilizumab) IV</td>
</tr>
</tbody>
</table>

a. A diagnosis of polyarticular juvenile idiopathic arthritis (PJIA) is established by or in consultation with a specialist in rheumatology.

AND

b. Treatment with a conventional immunomodulator (such as leflunomide, methotrexate, or sulfasalazine) was not effective after at least 6 weeks, or that a conventional immunomodulator was not tolerated, or all conventional immunomodulators are contraindicated.

AND

c. There is clinical documentation that treatment with at least TWO preferred self-administered therapies was not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in Appendix 6).
N. Psoriatic Arthritis (PsA)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered therapies may be considered medically necessary when criteria a and b below are met.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong></td>
</tr>
<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td>Humira (adalimumab), Otezla (apremilast), Enbrel (etanercept), Cosentyx (secukinumab), Stelara (ustekinumab)</td>
</tr>
</tbody>
</table>

| **Non-Preferred Self-Administered Options** |
| (Please refer to coverage policies administered by Washington State Rx Services.) |
| Refer to Washington State Rx Services. |

<table>
<thead>
<tr>
<th><strong>Infliximab Products</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</td>
</tr>
<tr>
<td>Preferred: Inflectra (infliximab)</td>
</tr>
<tr>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other Provider-Administered Options</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Orencia (abatacept) IV, Cimzia (certolizumab) vial, Simponi Aria (golimumab IV), Cosentyx (secukinumab) vial, Stelara (ustekinumab)</td>
</tr>
</tbody>
</table>

a. A diagnosis of psoriatic arthritis (PsA) when established by or in consultation with a specialist in dermatology or rheumatology. **AND**

b. There is clinical documentation that treatment with at least TWO preferred self-administered therapies were not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in Appendix 6).
O. Rheumatoid Arthritis (RA)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered therapies may be considered medically necessary when criteria a through c below are met.

FOR UMP MEMBERS:

| Preferred Self-Administered Options (Please refer to coverage policies administered by Washington State Rx Services.) | Humira (adalimumab), Enbrel (etanercept) |
| Non-Preferred Self-Administered Options (Please refer to coverage policies administered by Washington State Rx Services.) | Refer to Washington State Rx Services. |
| Infliximab Products | Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |
| | Preferred: Inflectra (infliximab) |
| | Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product |
| Other Provider-Administered Options | Orencia (abatacept) IV, Cimzia (certolizumab) vial, Simponi Aria (golimumab IV), Actemra (tocilizumab) IV |

a. A diagnosis of rheumatoid arthritis (RA) is established by or in consultation with a specialist in rheumatology (see Appendix 3).

AND

b. Treatment with a conventional synthetic DMARD (csDMARD) was not effective after at least a 6 to 12-week treatment course based on one or more of the assessment components listed in Appendix 4, or that a csDMARD was not tolerated or all csDMARDs are contraindicated. csDMARDs for RA include hydroxychloroquine, leflunomide, methotrexate, and sulfasalazine.

AND

c. There is clinical documentation that treatment with at least TWO preferred self-administered therapies were not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in Appendix 6).
P. Takayasu Arteritis

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

3. Other provider-administered options may be considered medically necessary when criteria a and b below are met.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>None</td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong>&lt;br&gt;(Please refer to coverage policies administered by Washington State Rx Services.)</td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td><strong>Infliximab Products</strong></td>
<td>Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</td>
</tr>
<tr>
<td></td>
<td>Preferred: Inflectra (infliximab)</td>
</tr>
<tr>
<td></td>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis), Unbranded Janssen infliximab product</td>
</tr>
<tr>
<td><strong>Other Provider-Administered Options</strong></td>
<td>Actemra (tocilizumab) IV</td>
</tr>
</tbody>
</table>

a. A diagnosis of Takayasu Arteritis is established by or in consultation with a specialist in rheumatology or immunology.

AND

b. One of the following i or ii below are met.

i. The patient has been unable to taper corticosteroids without experiencing worsening of disease (e.g., unable to achieve doses of 15-20 mg per day or less of prednisone or equivalent after 8 weeks).

OR

ii. The patient is experiencing breakthrough disease (for example, relapses or active disease flares) while stabilized on a conventional immunomodulators, for at least 8 weeks.
Q. Systemic Juvenile Idiopathic Arthritis (SJIA; Still's disease)

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. Provider-administered therapies may be considered medically necessary when criteria a through d below are met.

<table>
<thead>
<tr>
<th>FOR UMP MEMBERS:</th>
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</thead>
<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong></td>
<td>Kineret (anakinra)</td>
</tr>
<tr>
<td>(Please refer to coverage policies administered by</td>
<td></td>
</tr>
<tr>
<td>Washington State Rx Services.)</td>
<td></td>
</tr>
<tr>
<td><strong>Non-Preferred Self-Administered Options</strong></td>
<td>Refer to Washington State Rx Services.</td>
</tr>
<tr>
<td>(Please refer to coverage policies administered by</td>
<td></td>
</tr>
<tr>
<td>Washington State Rx Services.)</td>
<td></td>
</tr>
<tr>
<td><strong>Provider-Administered Options</strong></td>
<td>Actemra (tocilizumab) IV</td>
</tr>
</tbody>
</table>

a. A diagnosis of **systemic juvenile idiopathic arthritis** (SJIA; Still’s disease) is established by or in consultation with a specialist in rheumatology.

AND

b. There is disease activity greater than 6 months.

AND

c. One of the following i or ii below are met.

i. Treatment with at least one oral conventional agent was not effective after 12 weeks, not tolerated, or is contraindicated. Conventional agents for the treatment of SJIA include azathioprine, cyclosporine, leflunomide, methotrexate, systemic corticosteroids or tacrolimus.

OR

ii. Treatment with at least one NSAID (e.g., ibuprofen, celecoxib) was not effective after 4 weeks, not tolerated, or all are contraindicated.

AND

d. There is clinical documentation that treatment with **at least ONE** preferred self-administered therapy was not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to, those listed in Appendix 6).
Ulcerative Colitis (UC)

1. **Site of Care Requirements:** For provider-administered therapies, site of care administration requirements are met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. **Diagnostic Criteria:** A diagnosis of ulcerative colitis (UC) when established by or in consultation with a specialist in gastroenterology.

3. **Severity Criteria:** At least one of criterion a, b, or c below, are met.
   a. Treatment with an adequate course of corticosteroids (for example, prednisone 40 to 60 mg/day, oral budesonide 9 mg/day, or budesonide rectal for 7 to 14 days) was ineffective or is contraindicated.
   b. The patient has been unable to taper an adequate course of corticosteroids without experiencing worsening of disease.
   c. The patient is experiencing breakthrough disease (for example, active disease flares) while stabilized on a conventional immunomodulators, for at least two months. Conventional immunomodulators for UC include: azathioprine, balsalazide, cyclosporine, mercaptopurine, mesalamine, and sulfasalazine.

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**FOR UMP MEMBERS:**

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Products</th>
<th>Criteria Requirements</th>
</tr>
</thead>
</table>
| Preferred Self-Administered Options | • Humira (adalimumab)  
• Stelara (ustekinumab) | Refer to coverage policies administered by Washington State Rx Services. |
| Non-Preferred Self-Administered Options | Refer to Washington State Rx Services. | Refer to coverage policies administered by Washington State Rx Services. |
| Preferred Provider-Administered Options | Entyvio (vedolizumab) | 1. Site of Care Requirements  
2. Diagnostic Criteria  
3. Severity Criteria |
| | Inflectra (infliximab) | Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |
| Non-Preferred Provider-Administered Options | Stelara (ustekinumab) | 1. Site of Care Requirements  
2. Diagnostic Criteria  
3. Severity Criteria  
4. Treatment with at least TWO preferred self-administered therapies has been not effective after at least a 12-week treatment course unless each were not tolerated or are contraindicated (including, but not limited to those listed in Appendix 6). |
| Non-preferred infliximab Products | • Infliximab biosimilars (Avsola, Ixifi, Renflexis)  
• Remicade (infliximab)  
• Unbranded Janssen infliximab product | Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |
S. Uveitis

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

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FOR UMP MEMBERS:

<table>
<thead>
<tr>
<th>Preferred Self-Administered Options</th>
<th>Humira (adalimumab)</th>
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<tbody>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<table>
<thead>
<tr>
<th>Non-Preferred Self-Administered Options</th>
<th>Refer to Washington State Rx Services.</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Infliximab Products</th>
<th>Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Preferred: Inflectra (infliximab)</td>
</tr>
<tr>
<td></td>
<td>Non-preferred: Remicade (infliximab), other infliximab biosimilars (Avsola, Ixifi, Renflexis, Unbranded Janssen infliximab product)</td>
</tr>
</tbody>
</table>

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a. A diagnosis of **uveitis** is established by or in consultation with a specialist in ophthalmology.

**AND**

b. Treatment with corticosteroids (oral, periocular, or intravitreal injections) have been:
   i. Ineffective after two weeks of therapy (for example, prednisone 40 to 60 mg/day).
   **OR**
   ii. Unable to be tapered following an adequate course without worsening of disease.
   **OR**
   iii. Not tolerated or is contraindicated.

**AND**

c. Treatment with at least one conventional agent was not effective after a 6-week treatment course, not tolerated, or all are contraindicated. Conventional agents for treatment of uveitis include azathioprine, cyclosporine, methotrexate, mycophenolate, or tacrolimus.
Other Immunologic Conditions: Pyoderma Gangrenosum, Sarcoidosis

1. For provider-administered therapies, site of care administration requirements must be met [refer to Medication Policy Manual, Site of Care Review, dru408].

2. For infliximab products: Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.

<table>
<thead>
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<th>FOR UMP MEMBERS:</th>
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<tbody>
<tr>
<td><strong>Preferred Self-Administered Options</strong></td>
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<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<tr>
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<tr>
<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
</tr>
<tr>
<td><strong>Infliximab Products</strong></td>
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</tr>
</tbody>
</table>

a. A diagnosis of **pyoderma gangrenosum** or **sarcoidosis** has been established by or in consultation with a specialist in pulmonology, rheumatology, immunology, or other specialist for the disease state.

AND

b. Treatment with a conventional immunomodulator (e.g., methotrexate, azathioprine, cyclosporine, hydroxychloroquine, leflunomide, or mycophenolate) was ineffective, or not tolerated. (See Appendix 2 for additional conventional agents.)
IV. Administration, Quantity Limitations, and Authorization Periods

A. Pharmacy Services considers intravenously administered drugs in this policy coverable only under the medical benefit (as a provider-administered medication) (see Table 1).

B. Pharmacy Services considers Ilumya (tildrakizumab-asmn) coverable only under the medical benefit (as a provider-administered medication).

C. Pharmacy Services considers Stelara (ustekinumab) coverable under the pharmacy benefit (as a self-administered medication) OR coverable under the medical benefit (as a provider-administered medication).

D. Pharmacy Services considers the lyophilized powder formulations of Cimzia (certolizumab) and Cosentyx (secukinumab) coverable only under the medical benefit (as a provider-administered medication). Cosentyx (secukinumab) prefilled syringes and pens are coverable only under the pharmacy benefit (as self-administered medications). Cimzia (certolizumab) prefilled syringes are coverable only under the pharmacy benefit (as a self-administered medication).

E. When pre-authorization is approved, each drug may be covered in the following quantities and for the following authorization periods outlined in Table 1.

### Table 1. Authorization Limits

<table>
<thead>
<tr>
<th>Product</th>
<th>Route</th>
<th>Authorization Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orencia (abatacept)</td>
<td>IV</td>
<td><strong>aGVHD:</strong> Up to 4 infusions (up to 10 mg/kg) in a 4-week period based on a dose of 10 mg/kg/ dose given on days −1, +5, +14, and +28 post-transplant.</td>
</tr>
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<td></td>
<td></td>
<td><strong>RA, PJIA PsA:</strong> Up to 3 infusions (up to 1000 mg) in the first 4-week period, based on weight-based loading doses at weeks 0, 2 and 4, followed by maintenance dosing of up to 13 infusions in a 12-month period, based on a dose of one infusion (up to 1000 mg) every 4 weeks (14 infusions in the first 12-month period followed by up to 13 infusions per 12-month period, thereafter).</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RA:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- A single IV loading dose (up to 1000 mg) may be authorized, if required prior to administration of self-administered Orencia SC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Authorization may be reviewed at least annually, and clinical documentation indicating that there is disease stability or improvement must be provided.</td>
</tr>
<tr>
<td>Cimzia (certolizumab)</td>
<td>SC (vial only)</td>
<td><strong>CD, RA, PsA, AS, NR-axSpA:</strong> Up to 3 doses (six 200 mg vials) in the first month based on an initial dose of 400 mg SC at weeks 0, 2, and 4 followed by 200 mg every two weeks or 400 mg every four weeks for maintenance. (27 doses in the first 12-month period followed by up to 26 doses per 12-month period, thereafter).</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PsO:</strong></td>
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<tr>
<td></td>
<td></td>
<td>- Up to 400 mg (two 200 mg vials) every other week (up to 26 doses per 12-month period).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective.</td>
</tr>
<tr>
<td>Product</td>
<td>Route</td>
<td>Authorization Limit</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Note: Certolizumab is available in pre-filled syringes and as a lyophilized powder vial (for SC injection). Both forms are given subcutaneously; however only the vials are considered provider-administered.</td>
</tr>
</tbody>
</table>
| Simponi Aria (golimumab)    | IV    | **AS, PsA, RA:** Up to 3 infusions (up to 2 mg/kg) in the first 8-week period, based on weight-based loading doses at weeks 0, 4 and 8, followed by maintenance dosing of up to 7 infusions in a 12-month period, based on a dose of one infusion (up to 2 mg/kg) every 8 weeks (8 infusions in the first 12-month period followed by up to 7 infusions per 12-month period, thereafter).  

**PJIA:** Up to 3 infusions (up to 80 mg/m²) in the first 8-week period, based on body-surface-area-based loading doses at weeks 0, 4 and 8, followed by maintenance dosing of up to 7 infusions in a 12-month period, based on a dose of one infusion (up to 80 mg/m²) every 8 weeks (8 infusions in the first 12-month period followed by up to 7 infusions per 12-month period, thereafter).  

**Dose escalation:** Dosing interval of up to every 6 weeks may be considered medically necessary in patients who have had an inadequate response to every 8-week dosing given for at least 24 weeks. Authorization **may** be reviewed at least annually to confirm that current medical necessity criteria are met, and the medication is effective.  

Authorization **may** be reviewed at least annually, and clinical documentation indicating that there is disease stability or improvement must be provided. |
<p>| Infliximab (Inflectra, Remicade, and other biosimilars, unbranded product) | IV    | Refer to Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905 |</p>
<table>
<thead>
<tr>
<th>Condition</th>
<th>Dosage Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cosentyx</strong> (secukinumab) SC (vial only)</td>
<td><strong>AS:</strong> Up to 5 doses (five 150 mg vials) in the first 4 weeks based on a loading dose of 150 mg at weeks 0, 1, 2, 3, and 4, followed by up to 300 mg every 4 weeks thereafter (16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
</tr>
<tr>
<td><strong>Nr-axSpA:</strong> Up to 5 doses (five 150 mg vials) in the first 4 weeks based on a loading dose of 150 mg at weeks 0, 1, 2, 3, and 4, followed by up to 150 mg every 4 weeks thereafter (16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td><strong>ERA:</strong> Up to 5 doses (five 150 mg syringes or vials for patients ≥ 50 kg or five 75 mg syringes for patients &lt; 50 kg) in the first four weeks based on dose given at weeks 0, 1, 2, 3, and 4, then every 4 weeks thereafter (150 mg/ dose for patients ≥ 50 kg or 75 mg /dose for patients &lt; 50 kg; 16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td><strong>PsA:</strong> Up to 5 doses (five 150 mg vials) in the first four weeks based on a loading dose of 150 mg at weeks 0, 1, 2, 3, and 4, then 150 to 300 mg every 4 weeks thereafter (16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td>- <strong>Pediatric PsA</strong> (Patients 2 to 17 years): Up to 5 doses (five 150 mg syringes or vials for patients &gt; 50 kg or five 75 mg syringes for patients &lt; 50 kg) in the first four weeks based on dose given at weeks 0, 1, 2, 3, and 4, then every 4 weeks thereafter (150 mg/ dose for patients &gt; 50 kg or 75 mg /dose for patients &lt; 50 kg; 16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td>For patients with both PsA and PsO, dosing for PsO should be used.</td>
<td></td>
</tr>
<tr>
<td><strong>PsO:</strong> Up to 5 doses (ten 150 mg vials) in the first four-week period based on dosing of 300 mg at weeks 0, 1, 2, 3, and 4, then up to 300 mg every 4 weeks thereafter (16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td>- <strong>Pediatric PsO</strong> (Patients 6 to 17 years): Up to 5 doses (five 150 mg syringes or vials for patients &gt; 50 kg or five 75 mg syringes for patients &lt; 50 kg) in the first four weeks based on dose given at weeks 0, 1, 2, 3, and 4, then every 4 weeks thereafter (150 mg/ dose for patients &gt; 50 kg or 75 mg /dose for patients &lt; 50 kg; 16 doses in the first 12-month period followed by up to 13 doses per 12-month period, thereafter).</td>
<td></td>
</tr>
<tr>
<td>Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective.</td>
<td></td>
</tr>
</tbody>
</table>

Note: Secukinumab is available in pre-filled syringes and as a lyophilized powder vial (for SC injection). Both forms are given subcutaneously; however only the vials are considered provider-administered.
<table>
<thead>
<tr>
<th>Product</th>
<th>Route</th>
<th>Authorization Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilumya (tildrakizumab-asmn)</td>
<td>SC</td>
<td><strong>PsO:</strong> Up to two doses (two 100 mg syringes) in the initial four-week period followed by one dose (one 100 mg syringes) every 12 weeks thereafter based on an initial dose of 100 mg at weeks 0 and 4 followed by maintenance dosing of 100 mg every 12 weeks. (up to five 100 mg syringes in the first 12-month period followed by four 100 mg syringes per 12-month period thereafter). Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective.</td>
</tr>
<tr>
<td>Actemra (tocilizumab)</td>
<td>IV</td>
<td><strong>AMR:</strong> Up to 7 infusions (up to 8 mg/kg with an 800 mg per infusion maximum) in a 6-month period based on a recommended infusion interval of every 4 weeks. Authorization <strong>shall</strong> be reviewed at least every 6 months to confirm that current medical necessity criteria are met, and the medication is effective. <strong>RA and Takayasu Arteritis:</strong> Up to 13 infusions (up to 8 mg/kg) in a 12-month period based on a recommended infusion interval of every 4 weeks. <strong>PJIA:</strong> Up to 13 infusions (up to 10 mg/kg) in a 12-month period based on a recommended infusion interval of every 4 weeks. <strong>GCA:</strong> Up to 13 infusions (up to 6 mg/kg) in a 12-month period based on a recommended infusion interval of every 4 weeks. <strong>SJIA:</strong> Up to 26 infusions (up to 12 mg/kg) in a 12-month period based on a recommended infusion interval of every 2 weeks. <strong>CRS:</strong> Up to 4 infusions (up to 12 mg/kg). No additional doses will be authorized. <strong>For all RA, PJIA, and SJIA:</strong> Authorization <strong>may</strong> be reviewed at least annually, and clinical documentation indicating that there is disease stability or improvement must be provided.</td>
</tr>
<tr>
<td>Product</td>
<td>Route</td>
<td>Authorization Limit</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Stelara (ustekinumab)</td>
<td>SC (PsO and PsA)</td>
<td><strong>PsO and PsA:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- For all patients regardless of weight, up to five doses (five 45 mg syringes) in a 48-week period based on dosing of 45 mg at week 0 and 4, then 45 mg every 12 weeks thereafter (up to five 45 mg syringes in the first 12-month period followed by four 45 mg syringes per 12-month period thereafter).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dose escalation: For patients in whom the 45 mg dose has shown benefit, but who have not achieved clinical remission after at least a 12-week trial, doses of up to 90 mg every 12 weeks may be considered medically necessary. Dosing more frequent than 90 mg every 12 weeks is considered investigational (see Table 4 Investigational Uses: Dosing or Dose Escalation for more information).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met, and the medication is effective.</td>
</tr>
<tr>
<td>IV Induction (CD and UC Only)</td>
<td></td>
<td><strong>CD and UC Only:</strong> Initial: A single, weight-based IV infusion initially, then up to 6 doses (six 90 mg syringes) based on maintenance dosing of 90 mg SC every 8 weeks. Initial IV dosing is as follows:</td>
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<td></td>
<td></td>
<td>55 kg or less</td>
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<tr>
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<td>More than 55 kg to 85 kg</td>
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<tr>
<td></td>
<td></td>
<td>More than 85 kg</td>
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<tr>
<td></td>
<td></td>
<td>Additional IV induction courses doses may be considered medically necessary in patients who have previously had an inadequate response to every 8-week dosing given for at least 24 weeks or who have had a break in therapy.</td>
</tr>
<tr>
<td>SC Maintenance dosing for CD and UC</td>
<td></td>
<td><strong>CD:</strong></td>
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<tr>
<td></td>
<td></td>
<td>- Up to 7 doses (seven 90 mg syringes) in a one-year based on maintenance dosing of 90 mg SC every 8 weeks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Dose escalation/Re-induction: A dosing interval of up to every 4 weeks be or additional IV doses may be considered medically necessary in patients who have had an inadequate response to every 8-week dosing given for at least 24 weeks. Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met, and the medication is effective.</td>
</tr>
<tr>
<td>Product</td>
<td>Route</td>
<td>Authorization Limit</td>
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<tr>
<td>------------------</td>
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<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Entyvio (vedolizumab)</td>
<td>IV</td>
<td>CD and UC:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Initial authorization</strong>: Up to 6 doses (six 300 mg infusions) in a 6-month period based on a recommended starting interval of 300 mg infusions at zero, two and six weeks, then every eight weeks thereafter (9 infusions in the first 12-month period followed by up to 7 infusions per 12-month period, thereafter).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- <strong>Dose escalation</strong>: A dosing interval of every 4 weeks (up to 13 infusions per 12-month period) may be considered medically necessary in patients who have had an inadequate response to every 8-week dosing given for at least 24 weeks. Dosing more frequent than every 4 weeks is considered investigational (see Table 4 Investigational Uses: Dosing or Dose Escalation for more information).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Authorization may be reviewed at least annually and clinical documentation indicating that there is disease stability or improvement must be provided.</td>
</tr>
</tbody>
</table>

## Not Medically Necessary Uses

**Table 2.** Therapies included in this policy are not considered medically necessary when used according to Table 2.

<table>
<thead>
<tr>
<th>Ilumya (tildrakizumab-asmn) – Doses higher than 100 mg every 12 weeks</th>
<th>Doses &gt; 100 mg every 12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Ilumya (tildrakizumab-asmn) is considered not medically necessary when used in doses exceeding 100 mg every 12 weeks.</td>
<td></td>
</tr>
<tr>
<td>- Ilumya (tildrakizumab-asmn) is FDA approved for PsO at a dose of 100 mg subcutaneously every 12 weeks. While clinical trials of Ilumya (tildrakizumab-asmn) in PsO evaluated doses 100 mg and 200 mg subcutaneously every 12 weeks, both doses appeared to have similar efficacy. Therefore, the use of doses higher than 100 mg every 12 weeks is considered not medically necessary.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stelara (ustekinumab)</th>
<th>Initial doses of 90 mg for PsO/PsA</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Stelara (ustekinumab) is considered not medically necessary at initial doses of 90 mg per every 12 weeks regardless of weight. Given that more than half of all patients respond to the 45 mg dose and given the significant cost difference between the 45 mg and 90 mg doses, a trial of 45 mg for all patients regardless of weight represents the best treatment value.</td>
<td></td>
</tr>
<tr>
<td>- Note: For patients in whom the 45 mg dose has shown benefit, but who have not achieved clinical remission after at least a 12-week trial, doses of up to 90 mg every 12 weeks may be considered medically necessary.</td>
<td></td>
</tr>
<tr>
<td>- Dosing for Stelara (ustekinumab) was established through a post-hoc analysis of the results of the Phoenix 1 and Phoenix 2 trials. The recommended weight-based dosing scheme was not studied in a prospective manner. [2 3] Patients greater than 100 kg were found to have on average, a better response to treatment when receiving a dose of 90 mg every 12 weeks compared with 45 mg every 12 weeks.</td>
<td></td>
</tr>
<tr>
<td>* In Phoenix 1, 68.5% and 54.0% of patients greater than 100 kg achieved PASI75 in the 90 mg and 45 mg groups, respectively.</td>
<td></td>
</tr>
<tr>
<td>* In Phoenix 2, 71.1% and 49.1% of patients greater than 100 kg achieved PASI75 in the 90 mg and 45 mg groups, respectively.</td>
<td></td>
</tr>
<tr>
<td>* When treatment with 45 mg has resulted in some benefit, but has not achieved clinical remission, a continuation of treatment with 90 mg may be appropriate.</td>
<td></td>
</tr>
<tr>
<td>- There is no evidence to support the need for re-induction when the dose is escalated from 45 mg to 90 mg is made.</td>
<td></td>
</tr>
</tbody>
</table>
VI. Investigational uses

A. Combination use of targeted DMARDs, such as Otezla (apremilast) and tofacitinib (Xeljanz/Xeljanz XR), is considered investigational.

B. Unless otherwise specified in section I, therapies included in this policy are considered investigational when used for all other conditions, due to lack of published data, lack of high-quality data, or lack of positive data. Details of select investigational uses are listed below in tables 3 and 4.

C. Unless specified in Section II (Administration, Quantity Limitations, and Authorization Periods) or Section III (Not Medically Necessary Uses), all dose escalations above the quantity limit are considered investigational (Additional details are in Table 4).

Table 3: Investigational Uses: Indications

<table>
<thead>
<tr>
<th>Indication</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atopic Dermatitis</td>
<td>- Baricitinib is currently being evaluated for the treatment of atopic dermatitis. One preliminary, phase 2 study demonstrated that baricitinib may improve skin clearance compared to placebo. [4] However, longer-term, larger phase 3 studies are needed to confirm the benefit, identify the ideal population, and determine the appropriate dose.</td>
</tr>
</tbody>
</table>
| Extraintestinal complications of IBD: Arthritis| - Arthritis is a common extraintestinal complication of IBD (either UC or CD). However, there is no reliable evidence to establish the efficacy or safety of targeted DMARDs in patients with arthritis associated with IBD who do not otherwise require targeted therapy.  
  - The evidence is limited to small, short-term, open-label trials and case studies with infliximab. Given the lack of blinding and lack of control arm, the incremental benefit of infliximab therapy is uncertain. [5]  
  - There are no reliable published clinical trials with any other biologic DMARDs for treatment of arthritis associated with IBD (in the absence of active bowel disease).  
  - Of note: patients with IBD and a confirmed diagnosis of CD or UC with active bowel disease may be covered per Section I for management of IBD symptoms (active bowel disease). However, the isolated arthritis symptoms (in the absence of active bowel disease) is not coverable. |
| Blau’s Syndrome (Familial Juvenile Systemic Granulomatosis) | - There is no reliable evidence to establish the efficacy or safety of targeted DMARDs in the treatment of Blau’s syndrome.  
  - No randomized, controlled trials have been published evaluating the use of adalimumab in patients with Blau’s syndrome. |
| Graft Versus Host Disease (GVHD)               | - There is no reliable evidence to establish the efficacy or safety of targeted DMARDs in the treatment of GVHD.  
  - In one open-label clinical trial (n=62) incidences of GVHD-related mortality, non-relapse mortality, and overall survival were not different between patients treated with infliximab or placebo. [6] |
<table>
<thead>
<tr>
<th>Condition</th>
<th>Information</th>
</tr>
</thead>
</table>
| Granuloma Annulare | - There is no reliable evidence to establish the efficacy or safety of targeted DMARDs in the treatment of granuloma annulare.  
- While case reports have been published describing the treatment of granuloma annulare with etanercept, other reports have been published describing no effect, or an association with the formation of granuloma annulare and treatment with TNF-alfa inhibitors, including etanercept. Additional information is necessary to the benefit of etanercept in this population. [7] |
| Guttate Psoriasis | - Guttate psoriasis is a type of cutaneous psoriasis. It is characterized by the presence of small, erythematous papules whereas plaque psoriasis is characterized itchy, red, scaly, raised lesions on the skin. Guttate psoriasis is typically managed with topical agents or UV light therapy  
- There is no evidence to establish the efficacy or safety of targeted DMARDs in the treatment of guttate psoriasis. |
| Immune-mediated reactions (other than colitis or CRS with CAR-T cell therapy) due to immunotherapy | - There is no reliable evidence to establish the efficacy of safety of targeted DMARDs in the treatment of immune-mediated reactions, including but not limited to pneumonitis, hepatitis, or arthritis, due to PD-1, PDL-1, or CTLA4 inhibitors.  
- PD-1, PDL-1, and CTLA4 inhibitors contain warnings for immune-mediated hepatitis. In clinical trials, patients who experienced immune-mediated hepatitis were managed with systemic corticosteroids and mycophenolate.  
- For immune-mediated hepatitis, NCCN guidelines state that mycophenolate is recommended instead of infliximab due to the concern for hepatotoxicity with infliximab. |
| Reactive Arthritis/Reiter’s Syndrome | - There is no reliable evidence to establish the efficacy or safety of targeted DMARDs in the treatment of reactive arthritis/Reiter’s Syndrome. |
| Sciatica | - There is no reliable evidence to establish the efficacy or safety of targeted DMARDs in the treatment of sciatica.  
- Evidence for infliximab in the treatment of sciatica is limited to a randomized controlled trial in 40 patients. At 52 weeks, 67% of patients who received infliximab reported no pain compared with 63% of patients who received placebo (p = 0.72). This difference was not statistically significant. [8 9]  
- There are no randomized controlled trials that evaluate the efficacy and safety of a commercially available formulation of etanercept in the treatment of sciatica.  
- Evidence for adalimumab in the treatment of sciatica in limited to a small randomized, controlled trial evaluated adalimumab in 61 patients. There was a modest improvement in pain as measured by a 10-point visual analog scale and at three years, the need for back surgery was reduced in adalimumab-treated patients; however, larger clinical trials are needed to confirm the benefit of adalimumab in this population. [10 11] |
<p>| Scleroderma | - There is insufficient evidence to support the use of tocilizumab for scleroderma. The evidence is limited to one small, placebo-controlled, phase 2 trial using subcutaneous tocilizumab (n=88). The trial found a change in modified Rodan skin score, but no significant difference in skin thickening, disability, fatigue, itching, or patient or clinician global disease severity. Larger Phase 3 trials are needed to establish the safety and efficacy of tocilizumab for scleroderma. [12] |</p>
<table>
<thead>
<tr>
<th>Condition</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sjögren’s Syndrome</td>
<td>- There is no reliable evidence to establish the efficacy or safety of</td>
</tr>
<tr>
<td></td>
<td>targeted DMARDs in the treatment of Sjögren’s syndrome.</td>
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<td></td>
<td>- Evidence for etanercept in Sjögren’s syndrome is limited to a small</td>
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<td>trial, in which there were no significant differences in the subjective</td>
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<tr>
<td></td>
<td>measures of disease severity.</td>
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<td></td>
<td>- Evidence for anakinra is limited to a placebo-controlled trial in which</td>
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<td></td>
<td>patients with Sjögren’s syndrome failed to find a statistically-</td>
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<td></td>
<td>significant improvement in fatigue as measured by a visual analog</td>
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<td></td>
<td>scale in patient receiving anakinra compared with placebo. An ad-hoc</td>
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<td></td>
<td>analysis found suggestions of a clinically relevant effect, but larger,</td>
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<td></td>
<td>well-designed trials are needed to establish safety and efficacy for</td>
</tr>
<tr>
<td></td>
<td>Sjögren’s syndrome.</td>
</tr>
<tr>
<td>Systemic Lupus Erythematous (SLE)</td>
<td>- There is no reliable evidence to establish the efficacy or safety of</td>
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<tr>
<td></td>
<td>targeted DMARDs in the treatment of SLE.</td>
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<tr>
<td></td>
<td>- A small uncontrolled clinical trial reported modest efficacy with</td>
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<tr>
<td></td>
<td>infliximab in patients with systemic lupus erythematosus, though larger,</td>
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<td></td>
<td>better designed trials are needed to confirm these results.</td>
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<tr>
<td></td>
<td>- A small preliminary study assessing the use of tocilizumab in patients</td>
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<tr>
<td></td>
<td>with SLE found promising signs of response, but larger, controlled</td>
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<tr>
<td></td>
<td>studies will be needed to establish the efficacy and safety in this</td>
</tr>
<tr>
<td></td>
<td>population.</td>
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<tr>
<td></td>
<td>- One small randomized, placebo-controlled trial evaluated the use of</td>
</tr>
<tr>
<td></td>
<td>abatacept in patients with non–life-threatening SLE and polyarthritis.</td>
</tr>
<tr>
<td></td>
<td>The primary endpoint (proportion of patients with a new flare of SLE)</td>
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<tr>
<td></td>
<td>was not met, but was suggestive of a positive effect in certain</td>
</tr>
<tr>
<td></td>
<td>exploratory measures. Further study is needed to establish the safety</td>
</tr>
<tr>
<td></td>
<td>and efficacy of abatacept in SLE.</td>
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<tr>
<td></td>
<td>- One 24-week, phase 2 study evaluated the use of baricitinib in patients</td>
</tr>
<tr>
<td></td>
<td>with SLE. Results demonstrated that baricitinib 4 mg once may reduce</td>
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<td></td>
<td>SLE disease activity; however, results for the 2 mg dose were not</td>
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<tr>
<td></td>
<td>significant. Larger, longer-term studies are needed to clarify the</td>
</tr>
<tr>
<td></td>
<td>benefit of baricitinib in SLE.</td>
</tr>
<tr>
<td>Wegener’s Granulomatosis</td>
<td>- There is no reliable evidence to establish the efficacy or safety of</td>
</tr>
<tr>
<td></td>
<td>targeted DMARDs in the treatment of Wegener’s Granulomatosis.</td>
</tr>
<tr>
<td></td>
<td>- Evidence for infliximab is limited to one small clinical trial in 17</td>
</tr>
<tr>
<td></td>
<td>patients. Both infliximab and rituximab appeared to provide benefit in</td>
</tr>
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<td></td>
<td>achieving complete or partial response; however, there was a trend</td>
</tr>
<tr>
<td></td>
<td>favoring rituximab. Additionally, rituximab was better able to maintain</td>
</tr>
<tr>
<td></td>
<td>remission during the long-term follow-up.</td>
</tr>
</tbody>
</table>
### Table 4: Investigational Uses: Dosing or Dose Escalation

| Combination use of targeted immunomodulators | - The use of combination (more than one) targeted DMARD therapy, such as Humira (adalimumab), Otezla (apremilast), tofacitinib (Xeljanz/Xeljanz XR), or Entyvio (vedolizumab), is considered investigational (includes all medications included in this policy; see table 5 for a complete list of targeted DMARDs).

**Combination use of apremilast and other targeted immunomodulators**
- There is no reliable evidence to establish the efficacy or safety of the combined use of apremilast and other targeted DMARDs (such as biologics) in the treatment of PsO or PsA.
- There are no randomized, controlled trials evaluating the combined use of apremilast and any other targeted DMARD. The evidence is limited to retrospective studies in small numbers of patients. Additional studies are needed to establish long-term efficacy and the overall risk-benefit profile of combination use.

| Ustekinumab – Doses higher than 90 mg every 12 weeks for PsO or PsA | - There is insufficient evidence to support the use ofustekinumab at maintenance doses higher than 90 mg every 12 weeks for PsO or PsA.
- There are no randomized, controlled trials to support doses higher than 90 mg every 12 weeks in PsO or PsA.

| Vedolizumab - Doses higher than 300 mg every 4 weeks | - There is insufficient evidence to support the use of vedolizumab at maintenance doses higher than 300 mg every 4 weeks for CD and UC.
- In phase 3 clinical studies of vedolizumab in CD and UC the highest dose of vedolizumab used was 300 mg every four weeks. Higher or more frequent doses have not been evaluated. |
Position Statement
- There are many treatments for chronic inflammatory conditions that are effective, have known long-term safety profiles, and are recommended by national treatment guidelines.
- The intent of this policy is to allow coverage of each medication in settings where it has been safe and effective, with coverage after use of lower cost standard of care therapies, including preferred targeted DMARD options.
- Non-medical therapies, such as prescribed exercise therapy, physical therapy, weight loss, and smoking cessation are important treatment plan components for patients suffering from many chronic inflammatory conditions.
- When a systemic medication therapy is needed to manage a chronic inflammatory condition, generic oral therapies usually offer the best value.
- When non-medical therapies and oral medications are inadequate, a targeted DMARD or immunomodulator [conventional synthetic DMARD (csDMARD)] may be appropriate and use is supported by guidelines. Targeted DMARDs, include non-biologics and biologics. Biologics include both anti-TNF and non-anti-TNF options.
- When there is no demonstrated difference in safety or efficacy among the studied targeted DMARDs, the medication with the lowest cost often provides the best value for members.
- Individual responses and tolerability of targeted DMARDs, including biologics, are unpredictable and may vary between patients. If one targeted DMARD provides an inadequate response, another targeted DMARD may yet be effective.
- Due to the potential for development of antibodies with anti-TNF therapies which may result in loss of efficacy, clinical practice guidelines generally recommend a trial with one to two anti-TNF therapies. [20-24] For those who have an inadequate response or intolerance to a TNF inhibitor, it is reasonable to consider a targeted treatment with an alternative mechanism of action and proven efficacy for the patient’s diagnosis.
- All DMARDs, conventional and targeted, are immunosuppressants and carry a risk of increased infection. Risk and infection type varies by mechanism of action and medication.
- 2021 JAK inhibitors label updates placed their usage after other systemic therapies for the indications in which they have FDA approval due to safety concerns (which include major cardiovascular events and mortality among other concerns).
- There is significant variation in recommended dosing across indications for individual medications, particularly with targeted agents; therefore, when multiple dosage forms of a targeted agent are available, coverage can be provided for those indications where the dosage form has been evaluated in randomized controlled trials, the dosage form has been proven safe and effective, and for which the dosage form has an established dose. For all other indications, the specific dosage form will be considered investigational.
- Inflectra (infliximab-dyyb) is the preferred infliximab product. The reference products and other biosimilars such as Avsola (infliximab-axxq), Renflexis (infliximab-abda), are considered non-preferred. While they share most indications with each other, they are not the preferred formulation of infliximab.
The medications in this policy, including loading doses, are coverable for the lowest effective doses, aligned with how they were studied in clinical trials, including use of loading doses.

Evidence summary:

Rheumatic Conditions – Background
- Treatments for rheumatic conditions may include non-medical therapies, medications for the management of symptoms, medications that modify the disease course such as conventional synthetic or targeted disease modifying anti-rheumatic drugs (DMARDs).
- Medications to control inflammation such as nonsteroidal anti-inflammatory medications (NSAIDs, e.g., ibuprofen, indomethacin, and naproxen) and glucocorticoids (oral or injected into the joint) are effective for the management of symptoms, particularly during the early stages of disease.
- Generic, conventional synthetic DMARDs (csDMARDs), including MTX (methotrexate), hydroxychloroquine, leflunomide, and sulfasalazine are effective for decreasing symptoms and slowing disease progression, and are recommended by current guidelines.
  * MTX is generally the initial csDMARD for rheumatoid arthritis (RA) and juvenile idiopathic arthritis (JIA).
  * csDMARDs have known risks. The management of these risks is well established.
- Targeted DMARDs can also decrease symptoms, help preserve joint functioning, and slow the progression of the disease.
- In JIA, combination therapy with a csDMARD is strongly recommended for infliximab to reduce the risk of anti-drug antibodies against infliximab. \[25\]

Rheumatic Conditions – Enthesitis-related Arthritis (ERA)
- ERA is a type of juvenile idiopathic arthritis (JIA) that causes swelling or inflammation of the entheses (tendon-to-bone insertion sites).
- 2019 ACR guidelines for Juvenile Idiopathic Arthritis recommend NSAIDs as initial therapy for patients with ERA followed by TNF inhibitors. Methotrexate or sulfasalazine may be used if TNF inhibitors are contraindicated. ACR guidelines have not been updated to include secukinumab.\[26\]
- There is little comparative evidence to distinguish among the biologic options for ERA due to the lack of head-to-head comparisons.
- The evidence for secukinumab in ERA is based on one small placebo-controlled phase III withdrawal trial that demonstrated a reduced time to disease flare for those on secukinumab versus placebo.\[27\]

Rheumatic Conditions – Axial Spondyloarthritis (SpA)
- Axial spondylarthritis (SpA) is a form of inflammatory arthritis that includes ankylosing spondylitis (AS) and non-radiographic axial spondylarthritis (nr-axSpA).
- Several targeted DMARDs have been shown to be effective in the treatment of AS or nr-axSpA.
- There is moderate quality evidence to support the use of targeted DMARDs, particularly...
TNF inhibitors, in non-radiographic axial SpA. Clinical trials have consistently shown that treatment with TNF inhibitors reduced disease activity in this population.

- 2019 ACR guidelines do not recommended any one TNF inhibitor over another except in patients who also have inflammatory bowel disease or iritis in which case adalimumab or infliximab would be recommended over etanercept. Cosentyx (secukinumab) and Taltz (ixekizumab) are recommended as second-line options in patients who have active symptoms without response to a previous TNF inhibitor. TNF inhibitors, secukinumab, or ixekizumab are recommended over tofacitinib in patients with AS. [28]

- Because of similar efficacy among the studied targeted DMARDs, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria in Section I.

Rheumatic Conditions – Polyarticular Juvenile Idiopathic Arthritis (PJIA); Juvenile Rheumatoid Arthritis (JRA)

- Several targeted DMARDs (as listed in the coverage criteria) have been shown to be effective in the treatment of JIA.

- 2019 ACR guidelines for JIA recommend methotrexate, leflunomide, or sulfasalazine as initial therapy for patients with JIA. Methotrexate is recommended over leflunomide and sulfasalazine due to a larger body of evidence. Biologic agents are recommended in patients who have disease activity despite treatment with methotrexate, sulfasalazine, or leflunomide or in patients with high disease activity or have disease in high-risk joints. [25]

- Combination therapy with a biologic and a csDMARD is recommended to prevent the formation of anti-drug antibodies.

- There is little comparative evidence to distinguish among the targeted options for JIA. Guidelines state that there are mostly equivalent data for safety and efficacy between the biologics and there are lack of head-to-head comparisons between them.

- In patients who have had an inadequate response to a TNF inhibitor, switching to a non-TNF biologic is preferred over a second TNF inhibitor. However, a second TNF inhibitor may be appropriate if patients had a good response to the initial TNF inhibitor. [25]

Rheumatic Conditions – Psoriatic Arthritis (PsA)

- Several targeted DMARDs (as listed in the coverage criteria) have been shown to be effective in the treatment of PsA.

- ACR Guidelines recommend TNF inhibitors as the first-line treatment for PsA. However, other mechanisms can be used in patients with contraindications to TNF inhibitors. The guidelines do not specify the use of any one TNF inhibitor over another. [29]

- In patients who have failed a TNF inhibitor, a second TNF inhibitor is recommend over switching to a different mechanism of action (e.g., an IL-12/23 inhibitor, biologic, IL-17 inhibitors, abatacept, or tofacitinib). However, a different mechanism of action may be used in cases of primary TNF inhibitor failure (no response) or a serious adverse event due to a TNF inhibitor. [29]
Because of similar efficacy among the studied targeted DMARDs, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria.

Rheumatic Conditions – Rheumatoid Arthritis (RA)

- Several targeted DMARDs (as listed in the coverage criteria, as well as rituximab) have been shown to be effective in the treatment of RA.
- The efficacy of these targeted DMARDs in the treatment of RA is similar. Guidelines do not recommend one specific targeted DMARD. The initial choice of therapy includes biologic DMARDs (TNF inhibitors or a non-TNF biologic) or targeted synthetic DMARDs (e.g. JAK inhibitors). However, 2021 ACR guidelines have not accounted for recent drug safety communications regarding the risk of serious heart-related events with JAK inhibitors. [30 31]
- In patients who have had an inadequate response to targeted therapy, guidelines recommend switching to a targeted DMARD of a different class rather a different DMARD of the same class. [30]
- Guidelines have recommendations for specific patient populations including non-TNF inhibitors over TNF inhibitors for patients with New York Heart Association (NYHA) class III or IV heart failure. This recommendation is based on the risk of worsening heart failure observed in RCTs of TNF inhibitors in patients with heart failure.[30]
- Because of similar efficacy among the studied targeted DMARDs, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria.

Rheumatic Conditions – Systemic Juvenile Idiopathic Arthritis (SJIA)

- Several targeted agents (as listed in the coverage criteria) have been shown to be effective or are recommended by clinical practice guidelines in the treatment of SJIA. [21]
- Due to lack of high-quality data, the comparative efficacy for these agents in the treatment of SJIA is uncertain.
- The efficacy of these targeted DMARDs (as listed in the coverage criteria) in the treatment of SJIA is similar. However, there is a significant difference in the cost between these treatment options. Therefore, the costlier treatment options are coverable only when the less costly options are ineffective.

Rheumatic Conditions – Giant Cell Arteritis (GCA)

- Data evaluating the use of biologic agents in the treatment of GCA is limited; however, there are few treatment options for this condition, which can result in serious complications.
- Subcutaneous Actemra (tocilizumab) in combination with prednisone has been shown to improve remission rates compared prednisone alone in patients with newly diagnosed or relapsing GCA. [32]
- Intravenous Actemra (tocilizumab) is approved for the treatment of GCA; evidence is based primarily on pharmacokinetic exposure data and extrapolation to the efficacy established for subcutaneous tocilizumab in patients with GCA. [33]
- Evidence for the use of TNF inhibitors is lacking, as several small trials have not shown benefit in the treatment of GCA.
Skin Conditions – Chronic Plaque Psoriasis (PsO)

- There are many treatments for chronic plaque psoriasis (PsO) that are effective, have known long-term safety profiles, and are recommended by national treatment guidelines.
- Light therapy, including UVB and PUVA, is effective and safe, and PUVA may result in long-term remission. When patients are not able to receive office-administered light therapy, light units for home use may be an appropriate alternative (see Appendix 1 for absolute and relative contraindications for phototherapy/photochemotherapy).
- AAD guidelines (2014) recommend phototherapy after failure of first-line treatment (emollients, topical steroids, and topical calcineurin inhibitors). Most patients with mild-to-moderate psoriasis can achieve adequate control with topical medications or phototherapy.
- When systemic therapy is needed to manage psoriasis, csDMARDs often provide the best value. [35]
  * Conventional synthetic DMARDs (csDMARDs), including MTX, cyclosporine, and Soriatane (acitretin), have a proven track record and have been the standard of care for many years.
  * csDMARDs typically take effect with 6 weeks though some patients may require 12 weeks to have full effect. Among these options, cyclosporine is known to work rapidly.
  * Like all immunosuppressants, including targeted DMARDs, the csDMARDs have known risks. The management of these risks is well established.
- Targeted DMARD may be appropriate for patients with moderate to severe psoriasis (e.g., at least 10% BSA and/or significant pain or functional impairment due to the PsO or when conventional topical or oral therapies, or phototherapy have been inadequate.
- Several targeted DMARDs (as listed in the coverage criteria) have been shown to be effective in the treatment of moderate to severe PsO.
- Within each drug class, efficacy of each drug is similar. In general, agents directed against IL-17 (i.e., secukinumab) or IL-23 (i.e., guselkumab) are more effective at producing skin clearance than TNF inhibitors and other mechanisms of action. [35]
  Because of similar efficacy within each class, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria.

Skin Conditions – Hidradenitis Suppurativa

- High-quality data evaluating the use of targeted DMARDs in the treatment of hidradenitis suppurativa (HS) are limited; however, there are relatively few treatment options for this condition.
- Although adalimumab is FDA approved for the treatment of HS, infliximab also has data to support use in this indication. [36]
  * A high-quality systematic review showed that weekly-dosed adalimumab improved quality of life in HS compared to placebo; although, the effect size was approximately equal to what is considered a minimally clinically important difference.
  * In the same systematic review, infliximab also improved quality of life compared...
to placebo, with an effect size well above the threshold for a minimally clinically important difference.

- Trials of adalimumab in HS only included patients with more severe disease, defined as Hurley Stage II or III disease and with at least three abscesses or inflammatory nodules.

- Trials showed that adalimumab significantly improved the hidradenitis suppurativa response rate after 12 weeks of treatment; however, efficacy and safety beyond 12 weeks of treatment has not been established. [37 38]

- Additional long-term randomized controlled trials are needed to understand relative efficacy of other treatments, the safety associated with weekly-dosed adalimumab, and role of oral, non-biologic/non-targeted DMARD treatments for HS.

- Evidence-based guidelines for hidradenitis suppurativa are not available, primarily due to lack of data. However, standard of care therapy reviews suggest the following:
  * Patients may benefit from non-pharmacologic interventions such as good personal hygiene, smoking cessation, and weight-loss.
  * For mild to moderate HS, topical clindamycin and tetracyclines have a proven track record of safety and have been the standard of care.
  * When systemic therapy is needed to manage refractory hidradenitis suppurativa, oral therapies often provide the best value. Options include systemic antibiotics (e.g., oral tetracyclines, clindamycin, rifampin, moxifloxacin, metronidazole), hormonal therapies (e.g., oral contraceptives, spironolactone), cyclosporine, finasteride, metformin, or oral retinoids.

Gastrointestinal conditions – Background

- There are many treatments for Crohn’s disease (CD) and ulcerative colitis (UC) that are effective, have known long-term safety profiles, and are recommended by national treatment guidelines. [39]

- Lifestyle interventions, such as smoking cessation and diet modification, are important components of a comprehensive treatment plan for patients suffering from CD. [39]

- When medication therapy is needed to manage CD and UC, oral and topical (administered rectally) therapies often provide the best value. [39]

  * First-line therapies to induce remission include:
    - Patients with CD: oral corticosteroids, budesonide, aminosalicylates (e.g. sulfasalazine or mesalamine). [39]
    - Patients with UC: oral aminosalicylates (5ASAs, such as sulfasalazine), topical mesalamine or corticosteroids (e.g. budesonide), or oral corticosteroids, depending on the extent and location of disease.
    - Due to the potential for severe adverse effects, the use of conventional corticosteroids such as prednisone is generally reserved for patients with moderate-to-severe disease who failed to respond to first-line therapies. Use is generally limited to one to two weeks. [39]
    - Corticosteroids such as prednisone are effective in patients with both CD UC. Dosages in the range of 40 mg – 60 mg/day or 1 mg/kg/day of prednisone or equivalent are effective for induction of remission. [39]
**Once maintenance is induced with corticosteroids, maintenance therapy with azathioprine, 6-mercaptopurine, or methotrexate should be initiated. Azathioprine, 6-mercaptopurine, or methotrexate are slow acting and can take 8 to 12 weeks to have full effect.**

**First-line therapies to maintain remission include:**
- Patients with CD: MTX, 6-mercaptopurine, and azathioprine.
- Patients with UC: oral aminosalicylates (e.g. sulfasalazine), topical mesalamine or corticosteroids, or oral corticosteroids, depending on the extent and location of disease.

- When non-medical therapies and oral/topical therapies (steroids or csDMARDs) are inadequate, a targeted DMARD may be appropriate for induction and/or maintenance of disease remission.

**Gastrointestinal conditions – Crohn’s Disease (CD) and Ulcerative Colitis (UC)**

- There are many treatments for Crohn’s disease (CD) and ulcerative colitis (UC) that are effective, have known long-term safety profiles, and are recommended by national treatment guidelines. [39]
- Several targeted DMARDs (as listed in the coverage criteria) have been shown to be effective in the treatment of CD and/or UC, for inducing and maintaining remission compared to placebo.
- Due to a lack of head-to-head comparative studies, the overall comparative efficacy for these targeted DMARDs in the treatment of CD is uncertain. There is also a lack of comparative evidence for treatment of UC. Therefore, non-preferred/non-formulary options are coverable when preferred/formulary options are ineffective, as detailed in the coverage criteria.
- Although studied in UC, there are no controlled trials of golimumab in CD. Likewise, although studied in CD, there are no controlled trials of certolizumab or natalizumab in UC.
- Safety considerations:
  * Due to an increased risk of mortality and thrombosis with tofacitinib 10 mg twice daily or tofacitinib 22 mg daily, tofacitinib is only indicated for patients who have previously had an inadequate response or intolerance to TNF inhibitors.
  * Use of tofacitinib 10 mg twice daily or tofacitinib 22 mg daily should be limited to the shortest duration, with consideration of the benefits and risks for the individual patient. The prescribing information states that the lowest effective dose needed to maintain response should be used.

**Guidelines:** [39] [41]
- Lifestyle interventions, such as smoking cessation and diet modification, are important components of a comprehensive treatment plan for patients suffering from CD.
- When medication therapy is needed to manage CD and UC, oral and topical (administered rectally) therapies often provide the best value.
- First-line therapies to induce remission for CD/UC vary, based on severity and anatomic distribution, but may include:
  * Oral corticosteroids, “topical” steroids (enteric-coated budesonide), oral aminosalicylates (5ASAs, such as sulfasalazine or mesalamine). Steroids are used over csDMARDs for induction of remission in moderate to severe UC.
Several product formulations are specific to anatomic location of the disease, such as enteric-coated (EC) budesonide or EC mesalamine, or rectal 5ASAs.

* In addition, topical mesalamine may be used for UC, depending on the extent and location of disease.

* The use of conventional corticosteroids, such as prednisone, is generally reserved for patients with moderate-to-severe CD/UC refractory to first-line therapies, given the adverse events. Use is generally limited to one to two weeks.

* Corticosteroids, such as prednisone, (40 - 60 mg/day or 1 mg/kg/day), are effective for induction of remission for CD and UC.

Once maintenance is induced with corticosteroids, remission csDMARD therapy should be initiated. Choice of therapy varies between CD and UC, as well as response to induction therapy(s). Antimetabolite csDMARDs [such as MTX (methotrexate), 6-MP (6-mercaptopurine), azathioprine] are slow acting and can take 8 to 12 weeks to have full effect. They are also used to decrease immunogenicity in combination with targeted DMARDs.

First-line therapies to maintain remission include:

* CD: 6-mercaptopurine, azathioprine, and methotrexate.

* UC: oral 5ASAs (e.g., sulfasalazine), topical mesalamine or corticosteroids, or oral corticosteroids, depending on the extent and location of disease.

When non-medical therapies and oral/topical medications (steroids or aminosalicylates) are inadequate, a targeted DMARD may be appropriate for induction and/or maintenance of disease remission.

Guidelines for CD list multiple targeted DMARDs as effective treatment options. [39]

* TNF inhibitors, including infliximab and adalimumab, are recommended in patients who are resistant to corticosteroids or whose disease is refractory to csDMARDs such as azathioprine or 6-mercaptopurine.

* Ustekinumab is an option for moderate-to-severe CD patients who failed previous treatment with corticosteroids, thiopurines, methotrexate, or anti-TNF inhibitors or who have had no prior exposure to anti-TNF inhibitors.

* Vedolizumab is also listed as an effective option for the induction and maintenance of remission in CD.

* Due to the risk of progressive multifocal leuкоencephalopathy (PML), a serious (sometimes fatal) adverse event, natalizumab is only recommended after other treatment options have failed.

* Patients with fistulizing disease and severely active disease may be candidates for initial targeted DMARD. Definitions for severe disease include the following previous hospitalization for Crohn’s disease, extensive anatomic involvement, deep ulcers, prior surgical resection, stricturing and/or penetrating behavior.

Clinical practice guidelines for the treatment of UC indicate that for patients who initially respond to infliximab but lose response, an increase in dose or shortening of the interval between infusions may improve the likelihood of successful treatment. These guidelines acknowledge that these strategies have not been evaluated in a controlled manner.

Lack of response and loss of response to TNF inhibitors is common in both CD and UC. The choice of subsequent agent after failure of a TNF inhibitor is typically guided by...
serum levels. ACG guidelines state that, in patients with adequate serum levels of anti-
TNF antibodies switching to another TNF is unlikely to be of benefit.

**Gastrointestinal conditions – Immune-mediated Colitis**

- Serious or steroid-refractory colitis is a known adverse event associated with checkpoint
inhibitors such as Yervoy (ipilimumab), Opdivo (nivolumab), Keytruda (pembrolizumab),
Tecentriq (atezolizumab), Bavencio (avelumab), Libtayo (cemiplimab), and Imfinzi
(durvalumab). NCCN guidelines recommend prednisone or methylprednisolone as the
first-line treatment for moderate colitis. Infliximab may be considered if there has been
no improvement within 2-3 days of initiating glucocorticoids. [42]
- NCCN guidelines state that the duration of therapy with TNF-inhibitors is not clearly
defined but is usually a single dose. [42]

**Other Immunologic Conditions**

**Acute Graft Versus Host Disease (aGVHD)**[43]

- Graft versus host disease (GVHD) is a common complication of allogeneic hematopoietic
cell transplant (HCT) that occurs when the graft (donor) cells identify the transplant
recipient cells (host) as foreign and initiates an immune reaction that may lead to organ
damage or death.
- The risk for GVHD is higher when receiving a HCT from an unrelated donor.
- There are no standard guidelines for prophylaxis of acute GVHD, protocols vary by
transplant center. The choice of therapy may depend on the underlying disease, degree
of HLA disparity, conditioning regimen, and patient characteristics. Several regimens
include a calcineurin inhibitors (tacrolimus, cyclosporine) given with either
methotrexate or mycophenolate mofetil. Post-transplantation with cyclophosphamide or
T-cell depletion is also used.
- At 6 months post-transplant, abatacept was shown to increase acute GVHD free survival
as well as improve overall survival when used for patients with 8/8 HLA matched or 7/8
HLA mismatched unrelated donor HCT when used in combination with a calcineurin
inhibitor plus methotrexate.[44]

**Antibody Mediated Rejection of Transplant (solid-organ)**[45 46]

- Acute allograft (organ) rejection may be cellular (T-cell mediated) or humoral (antibody-
mediated) (AHR, AMR).
- Pre-treatment (desensitization) may reduce the risk of AMR in highly sensitized renal
transplant patients.
- Acute humoral rejection (AHR) is also an AMR and can occur outside of the peri-
operative period, but most commonly within 6 months after transplant. The diagnosis is
confirmed by a renal biopsy.
- The goal of therapy is early antibody elimination with IVIG, pheresis, or a combination
of modalities. However, evidence for therapies used in AMR are generally of low quality
and protocols vary between transplant centers. PLEX and IVIG are generally regarded
as a standard of care for acute active AMR. Rituximab has also been suggested as a
treatment option by KDIGO guidelines.[45]
One study assessed the use of tocilizumab as rescue therapy in 36 kidney transplant patients with chronic AMR who failed standard-of-care treatment with IVIG and rituximab, with or without plasma exchange. Tocilizumab was administered as 8 mg/kg monthly, with a maximal dose of 800 mg for 6 to 25 months. Graft- and patient-survival rates were 80% and 91% at six years post treatment, respectively.

In a small pilot study (N=10), patients who did not respond to desensitization with IVIG and rituximab (+/- plasma exchange) who were given tocilizumab 8 mg/kg on day 15 then monthly for 6 months with IVIG had a decrease in donor specific antibodies.\[47\]

Pyoderma Gangrenosum

Pyoderma gangrenosum (PG) is a rare ulcerative skin condition that is often associated with underlying systemic disease. First-line options for PG typically are systemic corticosteroids, cyclosporine, or tacrolimus. Infliximab is considered a second-line option when there has been an inadequate response. Infliximab or other biologic therapy may use when there is an underlying inflammatory condition, such as ulcerative colitis. [48 49]

Sarcoidosis

Sarcoidosis is a multisystem granulomatous disorder characterized by the presence of granulomas in involved organs. It most commonly impacts the lungs and lymph nodes but may manifest in other organs. [50]

Corticosteroid therapy is the primary therapy. Second line agents are considered for patients with corticosteroid-refractory disease. Second-line options include csDMARDs such as azathioprine, methotrexate, and leflunomide. Biologic therapy with infliximab is reserved for patients who have not responded to prior conventional agents. [50 51]

Takayasu arteritis

Takayasu arteritis is a rare type of vasculitis where inflammation damages the aorta. Takayasu arteritis is complex and requires specialist management to accurately diagnosis and manage the condition. High dose corticosteroids in combination with csDMARDs are recommend as the initial treatment options. Tocilizumab and infliximab are recommended as second line options in patients who are unable to taper off oral corticosteroids or who have a relapse despite treatment with corticosteroids in combination with a csDMARD. [52]

Actemra (tocilizumab) has been evaluated at doses of 8 mg/kg intravenously every 4 weeks or 162 mg subcutaneously weekly. There is limited information on the efficacy of higher doses. [52-53]

Uveitis

Corticosteroids are the mainstay of therapy in uveitis. Guidelines recommend a high dose course (prednisone 1 mg/kg/day or up to 60-80 mg per day) for up to one month.

A csDMARD is recommended if there is no response, or worsening, after two to four weeks of steroids. American Academy of Ophthalmology (AAO) guidelines recommend mycophenolate mofetil, azathioprine, methotrexate, cyclosporine, or tacrolimus. There is insufficient comparative evidence to conclude superiority of one csDMARD over another.

Targeted DMARDs are recommended in patients who have had an inadequate response to corticosteroids and csDMARDs.
* Adalimumab is FDA approved for uveitis and recommended as a treatment option in AAO guidelines. Adalimumab has been shown to lower flare rates and loss of visual acuity in two phase 3 RCTs in patients with active uveitis despite high-dose corticosteroids.

* Infliximab is also a recommended treatment option for uveitis based on evidence from several comparative, open-label trials.

Cryopyrin-Associated Periodic Syndromes (CAPS)/Neonatal-Onset Multisystem Inflammatory Disease (NOMID)

- CAPS are a group of rare genetic diseases affecting approximately 200 to 300 people in the United States and are attributed to a specific genetic mutation. [56]

- Three types of CAPS affect the majority of patients: [56]
  * Neonatal-Onset Multisystem Inflammatory Disease (NOMID) – Urticaria-like rash, CNS involvement [papilledema, cerebrospinal fluid (CSF) pleocytosis, or sensorineural hearing loss], elevated C-reactive protein (CRP), or epiphyseal and/or patellar overgrowth on radiographs.
  * Familial Cold Auto-Inflammatory Syndrome (FCAS) – Recurrent intermittent episodes of fever and rash that primarily followed natural, artificial (e.g. air conditioning), or both types of generalized cold exposure.
  * Muckle-Wells Syndrome (MWS) – Syndrome of chronic fever and rash that may wax and wane in intensity and is sometimes exacerbated by generalized cold exposure. This syndrome may be associated with deafness or amyloidosis.

- Therapies that affect interleukin-1 (IL-1) may be helpful in controlling the symptoms of CAPS. [56]
  * Therapies that affect IL-1 include Kineret (anakinra), Arcalyst (rilonacept), and Ilaris (canakinumab), all of which have FDA marketing approval for one of more forms of CAPS. [57-59]
  * Due to the rarity of these conditions, it is difficult to conduct high-quality scientific studies.

- There have been no head-to-head trials comparing the efficacy of Kineret (anakinra), Arcalyst (rilonacept), or Ilaris (canakinumab) against each other or any other medication in the management of CAPS.

- The efficacy of Kineret (anakinra) was evaluated in a prospective, long-term, open-label and uncontrolled study in 43 patients with NOMID aged 0.7 to 46 years who were treated for up to 60 months. [57 60]
  * Treatment with Kineret (anakinra) resulted in improvements in all individual disease symptoms measured by a disease-specific Diary Symptom Sum Score (DSSS), as well as in the serum markers of inflammation.
  * For 11 patients who went through a withdrawal phase, disease symptoms and serum markers of inflammation worsened after withdrawal and promptly responded to reinstitution of Kineret (anakinra) therapy.
Cytokine Release Syndrome (CRS)
- Tocilizumab IV is FDA-approved for the treatment of cytokine release syndrome associated with the use of chimeric antigen receptor (CAR) T cell therapy, such as Kymriah (tisagenlecleucel) and Yescarta (axicabtagene ciloleucel). It is given as a one-time weight-based dose but up to three additional doses may be administered if there is no clinical improvement.
- Subcutaneous tocilizumab and sarilumab, another IL-6 inhibitor, have not been studied in cytokine release syndrome.

Safety Considerations
- In general, the overall safety profiles of targeted DMARDs for chronic inflammatory diseases is favorable. However, several have warnings related to infection risk and hypersensitivity reactions. All are immunosuppressants and increase the risk of infection, though some drugs may increase the risk more than others.
- Certain products have unique safety concerns that should be factored into the overall risk-benefit profile.
- Oral JAK inhibitors (tofacitinib, upadacitinib, and baricitinib) contain a boxed warning for increased risk of serious infections, mortality, malignancies, major cardiovascular events and thrombosis. In a post-marketing safety study, tofacitinib did not meet its primary endpoint of non-inferiority for risk of cardiovascular events and malignancy. Results showed that patients who received tofacitinib at either 5 mg or 10 mg twice daily had a higher rate of cardiovascular events and malignancy compared to patients who received a TNF inhibitor. Though the study only evaluated tofacitinib the warning has been extended to other JAK inhibitors used in the treatment of RA and other inflammatory diseases.

* The boxed warning is based on a safety study designed to evaluate the safety of tofacitinib relative to TNF inhibitors. The study included patients age 50 or older with at least one CV risk factor and all patients received background MTX. Patients were randomized to one of three groups: tofacitinib 5 mg twice daily, tofacitinib 10 mg twice daily, or a TNF inhibitor.
* The study failed to meet its pre-specified safety endpoint of non-inferiority to TNF inhibitors for risk of cardiovascular events and malignancy.
* The prescribing information for each JAK inhibitors has been updated to clarify that each JAK inhibitor is only indicated for to certain patients who have not responded or cannot tolerate one or more TNF blockers.
* The FDA continues to investigate these safety concerns and will provide updates as additional information becomes is available.
* The risks and benefits of JAK inhibitors in patients at risk for venous thromboembolism should be carefully considered when choosing treatment strategies.
- Olumiant (baricitinib) has a boxed warning describing an increased risk of venous thromboembolism. Due to this risk, the use of baricitinib is limited to patients who have failed prior treatment options. There are several alternative targeted agents for the treatment of RA that do not carry a risk for VTE and have longer records of safety experience with comparable or better efficacy than baricitinib.
- While newer agents such as IL-23 inhibitors and IL-17 inhibitors, have demonstrated favorable risk-benefit profiles in clinical studies there is limited long-term safety experience. Additionally, there is limited evidence directly comparing to existing standards of care. [39 61-63]
- New or worsening heart failure is listed as a warning and precaution for TNF inhibitors. A clinical trial evaluating etanercept for the treatment of heart failure was terminated early due to lack of efficacy and suggested higher morality in etanercept-treated patients compared to placebo. Post-market, new or worsening heart failure have been reported with TNF inhibitors.

Dose Escalation

- There are no randomized, controlled trials to support dose escalation of Stelara (ustekinumab) from every 8 to 12 weeks to every four-week dosing in any condition. It is uncertain if there is any additional benefit with increased dosing and there is limited long-term safety data.
  * The evidence supporting the use of every four weeks in CD is limited to retrospective, observational studies. [67 68] While some patients experienced disease remission, high-quality, prospective studies are needed to identify the ideal population and clarify the risk-benefit profile. Due to limited evidence supporting use, more frequent dosing of Stelara (ustekinumab) for CD is limited to patients who have had an inadequate response to every 8-week dosing.
  * There are no high-quality studies evaluating the use of every 4-week dosing of Stelara (ustekinumab) in PsO.
  * Additional studies are also needed to clarify the role of dose escalation versus standard dosing or other mechanisms of action.
- Guidelines do not currently support the use of therapeutic drug monitoring of Stelara (ustekinumab) to guide dose escalation.
  * There is very limited evidence on the efficacy of different maintenance troughs for Stelara (ustekinumab). [69 70]
  * While therapeutic drug monitoring may play a role in the management of TNF inhibitors, the same concepts may not apply to ustekinumab due to its different mechanism of action and pharmacokinetic properties.
- Phase 3 clinical trials of Entyvio (vedolizumab) for UC and CD included maintenance dosing intervals of every 4 weeks and every 8 weeks (with a dose of 300 mg). The results demonstrated that the two maintenance doses produce in similar response rates. In long-term extension studies some patients who had an inadequate response to every 8-week dosing were able to achieve a response or regain response after increasing to every four-week dosing. Therefore, the use of every four-week dosing is limited to patients who have lost response or have had an inadequate response to every 8-week dosing. [71 72]
In PsO, there was no statistically significant difference in response for patients who were dose escalated to secukinumab 300 mg every 2 weeks vs every 4 weeks in patients who had suboptimal response to standard dosing at 16 weeks. After 16 weeks, most patients who continued with a 4-week dosing interval were able achieve response.[73]

Pharmacokinetic and exposure-response modeling suggest shortening the dosing interval for golimumab IV to every 6 weeks may ameliorate waning efficacy toward the end of the standard 8-week dosing interval experienced by a small proportion of patients.[64 74]

---

### Appendix 1: Absolute and Relative Contraindications for Phototherapy/Photochemotherapy

<table>
<thead>
<tr>
<th>Contraindication</th>
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</thead>
<tbody>
<tr>
<td>History of melanoma or squamous-cell carcinoma</td>
</tr>
<tr>
<td>History of photosensitivity</td>
</tr>
<tr>
<td>Increased risk of photosensitivity due to concomitant disease state (e.g. porphyria, systemic lupus erythematosus) or chronic medication use (e.g. tetracycline or sulfonamide antibiotics)</td>
</tr>
<tr>
<td>Physical inability to stand for the required exposure time</td>
</tr>
<tr>
<td>Presence of premalignant lesions (e.g. actinic keratosis)</td>
</tr>
<tr>
<td>Presence of psoriatic arthritis</td>
</tr>
<tr>
<td>Treatment of facial or scalp lesions</td>
</tr>
<tr>
<td>Treatment of lesions in the groin area</td>
</tr>
<tr>
<td>Treatment of lesions on the palms of the hands or soles of the feet, or on nail beds</td>
</tr>
<tr>
<td>Type 1 or type 2 skin</td>
</tr>
</tbody>
</table>

### Appendix 2: Select List of Conventional Synthetic Disease Modifying Anti-Rheumatic Drugs (csDMARDs)

#### Conventional Synthetic DMARDS for Rheumatic and Skin Conditions and Uveitis

<table>
<thead>
<tr>
<th>Drug</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azathioprine (AZA; Imuran)</td>
<td>Methotrexate (oral, injectable)*</td>
</tr>
<tr>
<td>Cyclosporine (CSA; Gengraf, Neoral, Sandimmune)*</td>
<td>Mycophenolate (MMF; CellCept, Myfortic)</td>
</tr>
<tr>
<td>Hydroxychloroquine (HCQ; Plaquenil)</td>
<td>Sulfasalazine (SSZ; Azulfidine)</td>
</tr>
<tr>
<td>Arava (leflunomide)</td>
<td>Soriatane (acitretin)*</td>
</tr>
</tbody>
</table>

#### Conventional Synthetic DMARDS for Gastrointestinal conditions

<table>
<thead>
<tr>
<th>Drug</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azathioprine (AZA; Imuran)</td>
<td>Mercaptopurine (6-MP; Purinethol)</td>
</tr>
<tr>
<td>Balsalazide (Colazal, Giazo)</td>
<td>Mesalamine (Apriso, Asacol HD, Delzicol, Lialda, Pentasa)</td>
</tr>
<tr>
<td>Cyclosporine (CSA; Gengraf, Neoral, Sandimmune)</td>
<td>Sulfasalazine (SSZ; Azulfidine)</td>
</tr>
</tbody>
</table>

*: Therapies used in the treatment of dermatologic conditions
Appendix 3: American College of Rheumatology (ACR) Classification Criteria for Establishing the Diagnosis of Rheumatoid Arthritis (RA) [75, 76]

Diagnosis of RA requires the presence of at least 4 of 7 criteria below:

1. Morning stiffness in and around joints lasting more than 1 hour.
2. Arthritis in at least 1 area in a wrist or proximal interphalangeal (PIP) joint (hands or fingers) for > 6 weeks.
3. Simultaneous swelling or fluid accumulation in 3 or more joints for > 6 weeks.
4. Symmetric (bilateral joint) involvement for > 6 weeks.
5. Presence of rheumatoid nodules.
6. Positive serum rheumatoid factor.
7. Radiographic changes typical of RA (erosion or unequivocal bony decalcification in or adjacent to the involved joint) on hand and wrist present.

Appendix 4: American College of Rheumatology (ACR) Assessment Components for Improvement in Rheumatoid Arthritis (RA) [77]

- Tender joint count.
- Swollen joint count.
- Patient's assessment of pain.
- Patient's global assessment of disease activity.
- Physician's global assessment of disease activity.
- Patient's assessment of physical function.
- Acute phase reactant measures (erythrocyte sedimentation rate or C-reactive protein levels).

Appendix 5: American College of Rheumatology (ACR) Classification Criteria for Establishing the Diagnosis of Giant Cell Arteritis (GCA)

Diagnosis of GCA requires the presence of at least 3 of 5 criteria below:

a. Patient age 50 years or older.
b. New onset of localized headache.
c. Temporal artery tenderness or decreased temporal artery pulse.
d. Erythrocyte sedimentation rate of 50 mm per hour or greater.
e. Abnormal temporal artery biopsy.

Appendix 6: Example Contraindications to Self-Administered Therapy

The member is 13 years of age or younger.

Inability to self-inject due to significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as needle phobia.

Preferred self-administered therapy/therapies are relatively contraindicated.
### Codes

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J3262</td>
<td>Injection, tocilizumab (Actemra IV), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0717</td>
<td>Injection, certolizumab pegol (Cimzia lyophilized powder vials), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3380</td>
<td>Injection, vedolizumab (Entyvio), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J1602</td>
<td>Injection, golimumab (Simponi Aria), 1 mg, for intravenous use</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3245</td>
<td>Injection, tildrakizumab (Ilumya), 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J3358</td>
<td>Ustekinumab (Stelara), for intravenous injection, 1 mg</td>
</tr>
<tr>
<td>HCPCS</td>
<td>J0129</td>
<td>Injection, abatacept (Orencia), 10 mg</td>
</tr>
</tbody>
</table>

**Cross References**

References


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22. European League Against Rheumatism recommendations for the management of psoriatic arthritis with pharmacological therapies. Secondary European League Against Rheumatism recommendations for the management of psoriatic arthritis with pharmacological therapies [cited 09/13/2013]. 'Available from:' http://ard.bmj.com/content/71/1/4.abstract.


27. Cosentyx (secukinumab) [Prescribing Information]. East Hanover, NJ: Novartis Pharmaceuticals Corporation; December 2021.


58. European biotech gets boost as Genmab market value hits $7 billion. Secondary European biotech gets boost as Genmab market value hits $7 billion [cited 11/20/2015].


64. Safety trial finds risk of blood clots in the lungs and death with higher dose of tofacitinib (Xeljanz, Xeljanz XR) in rheumatoid arthritis patients; FDA to investigate. Secondary Safety trial finds risk of blood clots in the lungs and death with higher dose of tofacitinib (Xeljanz, Xeljanz XR) in rheumatoid arthritis patients; FDA to investigate [cited 03/01/2019]. Available
65. FDA approves Boxed Warning about increased risk of blood clots and death with higher dose of arthritis and ulcerative colitis medicine tofacitinib (Xeljanz, Xeljanz XR). Secondary FDA approves Boxed Warning about increased risk of blood clots and death with higher dose of arthritis and ulcerative colitis medicine tofacitinib (Xeljanz, Xeljanz XR) [cited 7/26/2019].


### Revision History

<table>
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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
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</table>
| **5/23/2022** | **Effective 7/1/2022:**  
- Updated policy to allow dosing escalation of Simponi Aria (golimumab) to every 6 weeks.  
- Added Actemra (tocilizumab) IV to policy for Giant Cell Arteritis (GCA).  
- Updated Entyvio (vedolizumab) for Crohn's Disease (CD) and Ulcerative Colitis (UC) as a preferred provider-administered option.  
- Added HCPCS codes for provider-administered products. |
| **2/22/2022** | **Effective 3/13/2022:**  
- Added coverage criteria for intravenous Actemra (tocilizumab) for solid organ transplant, antibody mediated rejection (AMR).  
- Added criteria to allow coverage of intravenous Orencia (abatacept) for prophylaxis of graft versus host disease (GVHD).  
- Added coverage criteria for Cosentyx (secukinumab) for enthesitis-related arthritis (ERA).  
- Wording for intravenous Actemra (tocilizumab) criteria for cytokine release syndrome (CRS) was modified to allow for coverage as part of CAR-T treatment plan.  
- Updated position statement to clarify that non-TNFs may be an option for New York Heart Association (NYHA) class III/IV heart failure (HF) based on guidelines and post-market reports of new or worsening HF with TNF inhibitors. |
| **10/15/2021** | Revised preferred infliximab products and clarified that they are reviewed under Medication Policy Manual, Products with Therapeutically Equivalent Biosimilars/Reference Products, dru905.  
- Added unbranded Janssen infliximab product to policy as non-preferred. |
| **7/16/2021** | Updated appendix numbers in criteria. No other changes. |
| **4/21/2021** | - Added coverage criteria for sarcoidosis and Takayasu Arteritis.  
- Updated investigational uses. |
| **2/22/2021** | Removed requirement for step therapy with two prior self-administered products prior to approval of infliximab products (Remicade and biosimilars). |
| **10/28/2020** | - Added Simponi Aria as a provider-administered option for polyarticular juvenile idiopathic arthritis (PJIA), a newly approved FDA indication.  
- Increased authorization limit for infliximab in immune-mediated colitis to two infusions.  
- Clarified that Cosentyx (secukinumab) vials are a provider-administered option for non-radiographic axial spondyloarthritis. |

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These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
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<th>Revision Date</th>
<th>Revision Summary</th>
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| 8/25/2020     | **Effective 10/1/2020:**  
|               | - Revised clinical documentation requirements.  
|               | - Updated quantity limits for Cimzia (certolizumab) based on newly FDA approved indication.  
|               | - Removed references to appendix 2 in policy criteria and listed requirements for prior conventional therapies directly in criteria.  
|               | - **Non-Radiographic Axial Spondyloarthritides:** New diagnosis category in policy.  
|               | - **Chronic Plaque Psoriasis:**  
|               |   o Non-biologic-step-therapy requirements changed from “BSA ≥ 10% AND phototherapy AND conventional DMARD” to “BSA ≥ 10% OR phototherapy OR conventional agent.”  
|               |   o Conventional agent list expanded from just DMARDs to also include treatments such as topical corticosteroids.  
|               | - **Hidradenitis Suppurativa**  
|               |   o Removed requirement for disease severity.  
|               |   o Removed requirement for functional impairment.  
|               |   o Expanded list of acceptable step therapies from only antibiotics to also include corticosteroids, hormonal therapies, metformin, and retinoids.  
|               | - **Systemic juvenile idiopathic arthritis:** Expanded list of acceptable step therapies from only conventional DMARDs to also include NSAIDs.  
|               | - **Uveitits:** Expanded list of acceptable step therapies from only systemic corticosteroids to also include periocular intravitreal corticosteroids.  
| 4/22/2020     | - Updated quantity limits for Cosentyx (secukinumab) in axial Spondyloarthritis/ankylosing spondylitis.  
|               | - Clarified that quantity limits for Cosentyx (secukinumab) in this policy apply to vials. Cosentyx (secukinumab) syringes are considered self-administered.  
|               | - Updated biosimilar list to include Abrilada (adalimumab-afzb) and Avsola (infliximab-axxq).  
|               | - Updated dosing for Stelara (ustekinumab) in ulcerative colitis.  
|               | - Added COT language.  

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Natalizumab (Tysabri) is a medication used to treat multiple sclerosis or Crohn's disease. It is administered intravenously and works on the immune system to relieve symptoms of disease.

*This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA’s Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.*
Policy/Criteria

I. **Continuation of therapy (COT):** Natalizumab (Tysabri) may be considered medically necessary for COT when criterion A, B, or C below is met.

   A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

   **OR**

   B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:

   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   **AND**

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

   **OR**

   C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

   **Please note:** Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New starts (treatment-naïve patients):** Natalizumab (Tysabri) may be considered medically necessary when criterion A below is met.

   A. At least one of the following diagnostic criterion 1 or 2 below is met.

   1. **Multiple sclerosis:** Initial authorization for natalizumab (Tysabri) may be considered medically necessary when criteria a and b below are met.

      a. A definitive diagnosis of a **relapsing form of multiple sclerosis** [clinically isolated syndrome (CIS), relapsing-remitting MS (rrMS), or active secondary progressive MS (SPMS)] that has been established by or in consultation with a specialist in neurology or multiple sclerosis (see Appendix A for American Academy of Neurology multiple sclerosis definitions).

      **AND**

      b. Criteria i or ii below is met.

      i. At least two self-administered disease modifying therapies for multiple sclerosis have been documented in clinical notes to be ineffective, not tolerated, or contraindicated (including, but not limited to, those situations in Appendix C):
Preferred Self-Administered Therapies (for UMP Members): (Please refer to coverage policies administered by Washington State Rx Services)

<table>
<thead>
<tr>
<th>Therapy</th>
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<tbody>
<tr>
<td>dimethyl fumarate</td>
</tr>
<tr>
<td>fingolimod (Gilenya)</td>
</tr>
<tr>
<td>glatiramer acetate</td>
</tr>
<tr>
<td>interferon beta-1a (Avonex)</td>
</tr>
<tr>
<td>teriflunomide (Aubagio)</td>
</tr>
</tbody>
</table>

See Appendix B for other MS disease modifying therapies (DMTs)

**Ineffectiveness** is defined as meeting at least one of the following three criteria (1, 2, or 3) during treatment with one of these medications:

1. The patient continues to have clinical relapses (at least one relapse within the past 12 months).
   
   **OR**

2. The patient continues to have CNS lesion progression as measured by MRI.
   
   **OR**

3. The patient continues to have worsening disability. Examples of worsening disability include, but are not limited to, decreased mobility, decreased ability to perform activities of daily living due to disease progression, or an increase in EDSS score.
   
   **OR**

   ii. The patient has had a particularly aggressive initial disease course, as defined by meeting at least one of the following:

   1. An EDSS score of ≥ 4 within 5 years of onset.
      
      **OR**

   2. Multiple (two or more) relapses with incomplete resolution in the past year.
      
      **OR**

   3. At least two MRI studies showing new or enlarging T2 lesions or gadolinium-enhancing lesions despite treatment over 6 months.
      
      **OR**
4. The presence of spinal or brainstem lesions on MRI.

OR

2. **Crohn’s disease**: Initial authorization for natalizumab (Tysabri) may be considered medically necessary for patients meeting all of the following criteria under a, b, and c.
   
   a. Natalizumab (Tysabri) is prescribed by, or in consultation with, a specialist in gastroenterology for the indication of Crohn’s disease.
   
   AND

   b. Adalimumab (Humira) is not effective after at least an initial 3-dose induction period, except if not tolerated due to documented clinical side effects.
   
   AND

   c. Infliximab is not effective after at least an initial induction period (5 mg/kg on weeks 0, 2 and 6), except if not tolerated due to documented clinical side effects.

### III. Administration, Quantity Limitations, and Authorization Period

A. Pharmacy Services considers natalizumab (Tysabri) coverable only under the medical benefit (as a provider-administered medication).

B. When pre-authorization is approved, natalizumab (Tysabri) may be authorized in quantities up to one 300-mg infusion every 4 weeks.

C. Authorization period:

   1. **Multiple sclerosis**: Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

   2. **Crohn’s disease**: Initial authorization shall be for 12 weeks. Subsequent authorization shall be reviewed at least every six months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

### IV. Natalizumab (Tysabri) is considered not medically necessary when used in the following settings:

A. For the treatment of multiple sclerosis when used concomitantly with other disease-modifying multiple sclerosis therapies (MS DMTs) (see Appendix B).

B. For the treatment of Crohn’s disease when used concomitantly with any of the following:

   1. Adalimumab (Humira or biosimilars).
OR
2. Infliximab.

OR
3. Certolizumab pegol (Cimzia).

C. For the treatment of ulcerative colitis.

V. Natalizumab (Tysabri) is considered investigational when used for all other conditions, including, but not limited to:
   A. Primary progressive multiple sclerosis (PPMS).
   B. Rheumatoid arthritis.

Position Statement

Summary
- Natalizumab (Tysabri) is a monoclonal antibody used: [1]
  * As monotherapy for the treatment of patients with relapsing forms of multiple sclerosis (MS) to reduce the frequency of clinical exacerbations and delay the accumulation of physical disability.
  * For inducing and maintaining clinical response and remission in adult patients with moderately to severely active Crohn’s disease (CD) with evidence of inflammation when there has been inadequate response to, or intolerance of, conventional CD therapies and TNF-α inhibitors.
- The intent of the policy is to allow coverage of natalizumab (Tysabri) in patients who failed two preferred disease modifying therapies for MS or as a first-line option in situations where the benefits outweigh the risks. Natalizumab (Tysabri) may also be covered in patients with CD who have previously tried adalimumab or infliximab.
- Natalizumab (Tysabri) may be used in patients who failed prior disease modifying therapy or as a first-line option in situations where the benefits outweigh the risks. [1,2]
  * Natalizumab (Tysabri) contains a Boxed Warning describing an increased risk of progressive multifocal leukoencephalopathy (PML) with its use.
  * Because of these safety concerns, distribution of natalizumab (Tysabri) is restricted. Only prescribers registered in the CD TOUCH or MS TOUCH programs may prescribe natalizumab (Tysabri) for CD or MS, respectively.
- Natalizumab (Tysabri) is considered a disease modifying therapy (DMT) for multiple sclerosis. Other disease modifying multiple sclerosis treatments include interferon beta products (Avonex, Rebif, Betaseron, Extavia, or Plegridy), fingolimod (Gilenya), glatiramer acetate (Copaxone, Glatopa), teriflunomide (Aubagio), dimethyl fumarate, ocrelizumab (Ocrevus), and alemtuzumab (Lemtrada). [2] Rituximab may also be used off label for the treatment of relapsing forms of MS. [2]
- Natalizumab (Tysabri) may be used as initial disease modifying therapy in patients with “aggressive” or highly active disease.” Definitions for highly active disease are not well established however measures often include relapsing activity, MRI markers, or the location of gadolinium-enhancing lesions. The goal of treatment in patients with aggressive disease is initiate treatment with a highly effective therapy before the patient suffers permanent disability. [2]

- Monitoring for disease activity on MRI is recommended every 6 months.

- Natalizumab (Tysabri) is considered a disease modifying Crohn’s disease treatment. Other disease modifying Crohn’s disease treatments include adalimumab (Humira), infliximab, certolizumab pegol (Cimzia), vedolizumab (Entyvio), and ustekinumab (Stelara).

- No studies have shown that the efficacy of natalizumab (Tysabri) is superior to other disease modifying therapies in the treatment of either multiple sclerosis or Crohn’s disease.

- It is not recommended that natalizumab (Tysabri) be administered concomitantly with other disease-modifying MS medications due to the potential for increased risk of serious adverse events.

- Natalizumab (Tysabri) is approved at the dose of 300 mg infused intravenously over approximately one hour, every 28 days in the treatment of multiple sclerosis or Crohn’s disease. The safety and efficacy of natalizumab (Tysabri) at doses higher than 300 mg every 28 days have not been adequately evaluated.

Clinical Efficacy

MULTIPLE SCLEROSIS

- A 2015 Cochrane network meta-analysis concluded that alemtuzumab (Lemtrada), natalizumab (Tysabri), fingolimod (Gilenya), and mitoxantrone are more effective than other drugs at preventing relapse than other agents based on moderate to high quality evidence. The authors also concluded that only natalizumab (Tysabri) shows a beneficial effect on disability progression based on moderate quality data. Alemtuzumab (Lemtrada) and mitoxantrone were also found to be more effective than other treatments at slowing disability progression but the quality of evidence was lower. [3] Natalizumab (Tysabri) has only been shown to be safe and effective in the treatment of relapsing forms of multiple sclerosis. [1] There are no data to support the use of natalizumab (Tysabri) in non-relapsing forms of multiple sclerosis.

- American Academy of Neurology guidelines state disease modifying therapies should be offered to patients with relapsing forms of MS. The choice of initial agent should be individualized to incorporate of safety, route of administration, lifestyle, cost, efficacy, common adverse effects (AEs), and tolerability. Disease activity, adherence, AE profiles, and mechanism of action should be considered when switching disease modifying therapies. [2]

- AAN guidelines state that natalizumab (Tysabri), fingolimod (Gilenya), or alemtuzumab (Lemtrada) should be used in patients with highly active disease. [2]
Although no specific guidelines exist, proposed definitions of aggressive or highly active have been developed. It may be defined as at least one of the following: an EDSS score of 4 within 5 years of onset, multiple (two or more) relapses with incomplete resolution over a one-year period, more than two MRI studies showing new or enlarging T2 lesions or gadolinium-enhancing lesions despite treatment, no response to therapy with one or more disease modifying therapies for up to 1 year, or the presence of spinal lesions. Monitoring for treatment efficacy via MRI is recommended every 6 months. [4]

Natalizumab (Tysabri) in combination with any other disease modifying multiple sclerosis treatment medication has not been shown to be more effective than natalizumab (Tysabri) alone in the treatment of multiple sclerosis and may be contraindicated due to safety concerns.

CROHN’S DISEASE

FDA-approval of natalizumab (Tysabri) in Crohn’s Disease (CD) was based on three trials; two in induction of clinical response/remission and one in the maintenance of remission. [1]

* Patients in the induction trials had moderately to severely active CD (Crohn’s Disease Activity Index [CDAI] > 220 and < 450).

* In one of the two induction studies, significant differences in response to natalizumab (Tysabri) were only observed in the subgroup of patients with elevated C-reactive protein (CRP) levels. The second induction study used elevated CRP as an entry criterion. However, other medications (e.g., prednisone) may lower CRP levels, making this an insensitive predictor of efficacy.

* The treatment effect in the induction studies ranged from approximately 13 to 15%.

* In the trial that looked at maintenance of response of CD over 9 to 15 months, the treatment effect was approximately 33%.

Concomitant use natalizumab (Tysabri) with immunosuppressives (6-mercaptopurine, azathioprine, cyclosporine, and methotrexate) or inhibitors of TNF-α (e.g., infliximab and adalimumab) is not recommended due to potential safety concerns . [1]

Natalizumab (Tysabri) is generally considered a last-line agent for Crohn’s disease due to lack of comparative efficacy with other therapies and its potential for serious safety risks.

* Steroids, immunosuppressives, and inhibitors of TNF-alpha are recommended prior to prescribing natalizumab (Tysabri).

* A study demonstrating the efficacy of adalimumab (Humira) in patients in whom infliximab was not effective is the basis for recommending both adalimumab (Humira) and infliximab prior to natalizumab (Tysabri).

* A randomized, placebo-controlled study comparing adalimumab (Humira) with placebo in 325 patients with Crohn’s disease who had lost response to treatment with, or were intolerant to, previous infliximab therapy demonstrated induction of remission in 21% versus 7% of patients who
had received adalimumab and placebo, respectively (p<0.001, ABI 14%, NNT=8). [5]

- One small trial (n = 79) studied the concomitant use of natalizumab (Tysabri) and infliximab in patients who did not achieve remission of their CD after 12 weeks of infliximab. [6]
  * The trial was not powered to detect differences in efficacy between treatment groups.
  * There were not enough patients in the study to determine whether there were differences in uncommon or rare adverse effects between treatment groups.
  * The natalizumab (Tysabri) prescribing information warns against use of this combination.

- Natalizumab (Tysabri) should be discontinued in patients with CD who: [1]
  * Do not achieve therapeutic benefit after 12 weeks of induction therapy.
  * Cannot discontinue chronic concomitant steroids within six months of starting therapy.

**Safety**

- Several cases of progressive multifocal leukoencephalopathy (PML), a progressive demyelinating disease of the CNS, have been associated with natalizumab (Tysabri) use. PML is an opportunistic viral infection of the brain that usually leads to death or severe disability. [1]

- The natalizumab (Tysabri) prescribing information contains a Boxed Warning describing the increased risk of PML, which may lead to death or severe disability. [1]

- Because of the risk of PML, distribution of natalizumab (Tysabri) is restricted via the TOUCH Prescribing Program.
  * Providers must register to prescribe, distribute, or infuse natalizumab.
  * Only patients who are registered with and who meet all the conditions of either the MS or CD TOUCH programs are eligible to receive natalizumab.

- The most common side effects observed in patients receiving natalizumab (Tysabri) include: infections, acute hypersensitivity reactions, depression, and cholelithiasis (gall stones). [1]

- There are several case reports of patients who developed melanoma after starting treatment with natalizumab (Tysabri). [7] Although cause-effect has not been established, clinicians should be aware of this potential risk, especially when considering therapy for patients with a history of melanoma.

- The natalizumab (Tysabri) prescribing information contains a warning regarding the potential for liver injury. In some patients this occurred as early as six days after an initial dose. [1]
**Dosing and administration**

- Natalizumab (Tysabri) is administered as an intravenous infusion (300 mg) once every 28 days in the treatment of multiple sclerosis and Crohn’s disease. The safety and efficacy of natalizumab (Tysabri) at doses higher than 300 mg every 28 days have not been adequately evaluated. [1]

**Natalizumab – Use in Other Conditions**

- The TOUCH Prescribing Program currently prevents off-label use of natalizumab (Tysabri).
- Authors of a small, open-label study in 10 patients with active ulcerative colitis reported clinical benefit at 4 weeks with administration of natalizumab (Tysabri). Larger, well-designed trials are needed before safety and efficacy are established for this indication.[8]
- There are no data available to support the safety and efficacy of natalizumab (Tysabri) in the treatment of rheumatoid arthritis.

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<table>
<thead>
<tr>
<th>Appendix A: Multiple Sclerosis Forms/Clinical Course Definitions [1,9]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinically Isolated Syndrome (CIS)</strong></td>
</tr>
<tr>
<td><strong>Relapsing-remitting (RRMS)</strong></td>
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<tr>
<td><strong>Secondary progressive (SPMS)</strong></td>
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<tr>
<td><strong>Primary progressive (PPMS)</strong></td>
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### Appendix B: Disease-Modifying Agents Used in the Treatment of Multiple Sclerosis (MS DMTs)

<table>
<thead>
<tr>
<th>Drug</th>
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<tbody>
<tr>
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<td>Cladribine (Mavenclad)</td>
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<tr>
<td>Siponimod (Mayzent)</td>
</tr>
<tr>
<td>Teriflunomide (Aubagio)</td>
</tr>
</tbody>
</table>

¹ Rituximab is not FDA-approved for use in MS, but has evidence for efficacy

### Appendix C: Example Contraindications to Self-Administered Therapy

The member is 13 years of age or younger.

Inability to self-inject due to significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as needle phobia.

Preferred self-administered therapy/therapies are relatively contraindicated.

### Cross References

- Lemtrada, alemtuzumab (UMP plans), Medication Policy Manual, Policy No. dru903
- Ocrevus, ocrelizumab (UMP Plans), Medication Policy Manual, Policy No. dru902
- Provider-administered drugs for chronic inflammatory diseases (UMP Plans), Medication Policy Manual, Policy No. dru900
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Revision History
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<td>12/28/2021</td>
<td>Updated Preferred Self-Administered Therapies (for UMP Members)</td>
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<tr>
<td>10/15/2021</td>
<td>Removed Site of Care requirements. Updated document to only reference “infliximab” and not any brand product in particular.</td>
</tr>
<tr>
<td>1/20/2021</td>
<td>Updated Preferred Self-Administered Therapies (for UMP Members)</td>
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<tr>
<td>1/22/2020</td>
<td>Added continuation of therapy (COT) criteria (no change to intent of coverage criteria).</td>
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</tbody>
</table>

*Drug names identified in this policy are the trademarks of their respective owners.*
**UMP Medication Policy Manual**  
**Policy No:** dru902  
**Date of Origin:** January 1, 2020  
**Next Review Date:** December 2022  
**Effective Date:** February 1, 2022

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Ocrelizumab (Ocrevus) is an intravenously administered medication indicated for the treatment of relapsing or primary progressive forms of multiple sclerosis. It works by destroying certain immune cells that are involved in the multiple sclerosis immune response.

*This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA's Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.*
Policy/Criteria

I. Continuation of therapy (COT): Ocrelizumab (Ocrevus) may be considered medically necessary for COT when criterion A, B, or C AND D below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

   AND

   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

AND

D. Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Ocrelizumab (Ocrevus) may be considered medically necessary when criteria A AND B below are met:

A. Site of care administration requirements are met. [refer to Medication Policy Manual, Site of Care Review, dru408]

AND

B. Criterion 1 or 2 below are met.
   1. A definitive diagnosis of primary progressive multiple sclerosis (PPMS) has been established by a specialist in neurology or multiple sclerosis.

   OR

   2. Criteria a and b below are met.
      a. A definitive diagnosis of a relapsing form of multiple sclerosis [clinically isolated syndrome (CIS), relapsing-remitting MS (RRMS), or active secondary progressive MS (SPMS)] has been established by a specialist in neurology or multiple sclerosis.

   AND
b. Criteria i or ii below are met.
   i. When at least two self-administered disease modifying therapies for multiple sclerosis have been documented in clinical notes to be ineffective, not tolerated, or contraindicated (including, but not limited to, those situations in Appendix B):

   **Preferred Self-Administered Therapies (for UMP Members):**
   *(Please refer to coverage policies administered by Washington State Rx Services)*

<table>
<thead>
<tr>
<th>Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>dimethyl fumarate</td>
</tr>
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<tr>
<td>glatiramer acetate</td>
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<tr>
<td>interferon beta-1a (Avonex)</td>
</tr>
<tr>
<td>teriflunomide (Aubagio)</td>
</tr>
</tbody>
</table>

   *See Appendix A for other MS disease modifying therapies (DMTs)*

   **Ineffectiveness** is defined as meeting at least one of the following three criteria (1, 2, or 3) during treatment with one of these medications:

1. The patient continues to have clinical relapses (at least one relapse within the past 12 months).

   OR

2. The patient continues to have CNS lesion progression as measured by MRI.

   OR

3. The patient continues to have worsening disability. Examples of worsening disability include, but are not limited to, decreased mobility, decreased ability to perform activities of daily living due to disease progression, or an increase in EDSS score.

   OR

ii. The patient has had a particularly aggressive initial disease course, as defined by meeting at least one of the following:

1. An EDSS score of $\geq 4$ within 5 years of onset.

   OR

2. Multiple (two or more) relapses with incomplete resolution in the past year.
OR

3. At least two MRI studies showing new or enlarging T2 lesions or gadolinium-enhancing lesions despite treatment over 6 months.

OR

4. The presence of spinal or brainstem lesions on MRI.

III. Administration, Quantity Limitations, and Authorization Period

A. Pharmacy Services does not consider ocrelizumab (Ocrevus) to be a self-administered medication.

B. When pre-authorization is approved, ocrelizumab (Ocrevus) shall be authorized in quantities up to 1200 mg every 12 months (one infusion of 300 mg on day 1 followed by a second infusion on day 15 with subsequent doses of 600 mg infusions every 6 months thereafter).

C. Authorization may be reviewed at least annually to confirm that current medical necessity criteria are met and that the medication is effective. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Ocrelizumab (Ocrevus) is considered investigational when used for all other conditions, including but not limited to:

A. Use in combination with other disease-modifying multiple sclerosis therapies (see Appendix A).

B. Any cancer indication, including, but not limited to B-cell chronic lymphocytic leukemia.

C. Maintenance dosing more frequent than every 24 weeks.

D. Neuromyelitis optica spectrum disorders (NMOSD).

E. Rheumatoid arthritis.

Position Statement

Summary

- Ocrelizumab (Ocrevus) is a monoclonal antibody used as monotherapy for the treatment of patients with primary progressive multiple sclerosis (PPMS) and relapsing forms of multiple sclerosis (MS).

- Ocrelizumab (Ocrevus) is considered a disease modifying multiple sclerosis treatment. Other disease modifying multiple sclerosis treatments for relapsing forms of MS include alemtuzumab (Lemtrada), interferon beta products (Avonex, Rebif, Betaseron, Extavia, or Plegridy), fingolimod (Gilenya), glatiramer acetate, teriflunomide (Aubagio), and
dimethyl fumarate. Rituximab may also be used off label for the treatment of relapsing forms of MS.\[1\]

- The intent of this policy is to allow coverage of ocrelizumab (Ocrevus) in patients with primary progressive MS or in patients with a relapsing form of MS who have tried two preferred disease modifying therapies for MS or who have a particularly aggressive disease course.

- Ocrelizumab (Ocrevus) has not been studied in combination with other disease-modifying MS medications and it is therefore not recommended that ocrelizumab (Ocrevus) be administered concomitantly with other disease-modifying MS medications as efficacy and safety have not been established. Concomitant use of Ocrelizumab (Ocrevus) with any other disease-modifying therapy for MS is considered investigational.

- Ocrelizumab (Ocrevus) is an intravenously infused medication. The starting dose is 300 mg given on day one followed by 300 mg two weeks later. Thereafter, ocrelizumab (Ocrevus) is given every 6 months at a dose of 600 mg.

- The safety and effectiveness of ocrelizumab (Ocrevus) in conditions other than PPMS or relapsing forms of MS have not been established.

**Clinical Efficacy in Multiple Sclerosis**

- Ocrelizumab (Ocrevus) has been shown to reduce relapse rate, slows disability progression, and slows worsening of disease based on MRI outcomes in patients with relapsing forms of MS. \[2\]
  * Two identical, 96-week studies (OPERA I and OPERA II), evaluated the effects of ocrelizumab (Ocrevus) compared to interferon beta-1a (Rebif) in patients with relapsing forms of MS. Ocrelizumab (Ocrevus) was superior to interferon beta-1a in reducing annualized relapse and in slowing confirmed disability progression. On MRI, the patients in the ocrelizumab (Ocrevus) group had fewer new and/or enlarging T2 lesions, less T1 lesions, and a reduced rate of total brain volume loss relative to the interferon beta-1a (Rebif) group.

- Ocrelizumab (Ocrevus) has been shown to slow disability progression, and slow the worsening of MRI outcomes in patients with PPMS. \[3\]
  * One 120-week study (ORATORIO), evaluated the effects of ocrelizumab (Ocrevus) relative to placebo in patients with PPMS. Ocrelizumab (Ocrevus) was superior to placebo reducing the proportion of patients who had sustained 12-week confirmed disability progression. The treatment group also showed a significant decrease in T2 volume and showed significantly less brain volume loss on MRI.

**Safety** \[4\]

- Ocrelizumab (Ocrevus) contains warnings for infusion reactions, infections, and risk of malignancy.

- Common adverse events include upper respiratory tract infections, infusion reactions, skin infections, and lower respiratory tract infections.
**Dosing and Administration** [4]

- Ocrelizumab (Ocrevus) is administered as an intravenous (IV) infusion.
- The starting dose is 300 mg IV followed by 300 mg IV two weeks later. Subsequent doses of ocrelizumab (Ocrevus) are then given every 6 months at a dose of 600 mg IV as a single infusion.

**Ocrelizumab (Ocrevus) – Use in Other Conditions**

- Due to a lack of published data, the use of ocrelizumab (Ocrevus) in conditions other than relapsing forms of MS and PPMS is considered investigational.
- While Ocrelizumab (Ocrevus) has a similar mechanism of action to rituximab it has not been studied for the same indications. Thus, due to a lack of data, these conditions are considered investigational.

**Neuromyelitis Optica Spectrum Disorders (NMOSD)**

- Neuromyelitis optica spectrum disorders (NMOSD; previously known as Devic disease) are characterized by a combination of bilateral optic neuropathy and cervical myelopathy. While both NMOSD and MS are demyelinating diseases they are considered different diseases based on unique immunologic features and differences in imaging features, biomarkers, and neuropathology. [5]
- For acute attacks and relapses of NMOSD, treatment usually consists of intravenous glucocorticoids followed soon by plasmapheresis for refractory or progressive symptoms. For prevention of attacks, systemic immunosuppression with agents including azathio sine, mycophenolate mofetil, rituximab, and mitoxantrone has been used, given the evidence that humoral autoimmunity plays a role in the pathogenesis of NMO. [6,7]
- Rituximab has been shown to the frequency of NMOSD relapses and neurologic disability based on results from one systematic review. However, the optimal treatment regimen and duration have not been determined and additional long-term safety experience is needed to clarify the role of rituximab as a first-line option. [8]
- There is no published evidence to support the use of ocrelizumab (Ocrevus) for NMOSD.
### Appendix A: Disease-Modifying Agents Used in the Treatment of Multiple Sclerosis (MS DMTs)

<table>
<thead>
<tr>
<th>Drug Name</th>
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¹ Rituximab is not FDA-approved for use in MS, but has evidence for efficacy
Appendix B: Example Contraindications to Self-Administered Therapy

The member is 13 years of age or younger.

Inability to self-inject due to significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as needle phobia.

Preferred self-administered therapy/therapies are relatively contraindicated.

Cross References

Lemtrada, alemtuzumab (UMP plans), Medication Manual, Policy No. dru903

Site of Care Review, Medication Policy Manual, Policy No. dru408

Tysabri, natalizumab (UMP Plans), Medication Policy Manual, Policy No. dru901

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<tr>
<td>HCPCS</td>
<td>J2323</td>
<td>Injection, natalizumab (Tysabri), 1 mg</td>
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References


4. Ocrevus [Prescribing Information]. South San Francisco, CA: Genentech; March 2017


**Revision History**

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<tr>
<td>12/28/2021</td>
<td>• Updated Preferred Self-Administered Therapies (for UMP Members)</td>
</tr>
<tr>
<td>1/20/2021</td>
<td>• Clarified quantity limit</td>
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<td>• Updated Preferred Self-Administered Therapies (for UMP Members)</td>
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IMPORTANT REMINDER

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Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of medication policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Alemtuzumab (Lemtrada) is a medication used in the treatment of relapsing forms of multiple sclerosis (MS). It may help to slow the progression of disability and reduce the number of clinical relapses associated with this condition.

PLEASE NOTE: This policy does NOT apply to alemtuzumab (Campath), which is used primarily in the treatment of cancer (leukemia).

*This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA's Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.*
Policy/Criteria

I. Continuation of therapy (COT): Alemtuzumab (Lemtrada) may be considered medically necessary for COT when criterion A, B, or C below is met.

A. For diagnoses NOT listed in the coverage criteria below, full policy criteria must be met for coverage.

OR

B. For diagnoses listed in the coverage criteria below, criteria 1 and 2 must be met:
   1. The patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.
   AND
   2. There is documentation of clinical benefit, such as disease stability as detailed in the reauthorization criteria.

OR

C. The medication was initiated for acute disease management, as part of an acute unscheduled, inpatient hospital admission.

Please note: Medications obtained as samples, coupons, or promotions, paying cash for a prescription ("out-of-pocket") as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): alemtuzumab (Lemtrada) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below is met.

A. A definitive diagnosis of a relapsing form of multiple sclerosis (clinically isolated syndrome, relapsing-remitting MS or secondary progressive MS) that has been established by a specialist in neurology or multiple sclerosis. (see Appendix A for American Academy of Neurology multiple sclerosis definitions).

AND

B. When at least two self-administered disease modifying therapies for MS have been documented in clinical notes to be ineffective, not tolerated, or contraindicated (including, but not limited to, those in Appendix B):

<table>
<thead>
<tr>
<th>Preferred Self-Administered Therapies (for UMP Members):</th>
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<td>(Please refer to coverage policies administered by Washington State Rx Services.)</td>
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<tr>
<td>dimethyl fumarate</td>
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</tbody>
</table>

These criteria do not imply or guarantee approval. Please check with your plan to ensure coverage. Preauthorization requirements are only valid for the month published. They may have changed from previous months and may change in future months.
See Appendix B for other MS disease modifying therapies (DMTs)

**Ineffectiveness** is defined as meeting at least one of the following three criteria (1, 2, or 3) during treatment with one of these medications:

1. The patient continues to have clinical relapses (at least one relapse within the past 12 months).

   OR

2. The patient continues to have CNS lesion progression as measured by MRI.

   OR

3. The patient continues to have worsening disability. Examples of worsening disability include, but are not limited to, decreased mobility, decreased ability to perform activities of daily living due to disease progression, or an increase in EDSS score.

III. Administration, Quantity Limitations, and Authorization Period

   A. Pharmacy Services considers alemtuzumab (Lemtrada) to be a provider-administered medication.

   B. When pre-authorization is approved, alemtuzumab (Lemtrada) may be covered in the following quantities and for the following authorization periods:

      1. Initial authorization (first treatment course; 5 doses): Up to 12 mg/day on five consecutive days in a 12-month period.

      2. Second authorization (second treatment course; 3 doses): Following the first treatment course (of five doses), a second treatment course of up to 12 mg/day on three consecutive days in a 12-month period.

      3. Additional Authorizations [additional treatment course(s); 3 doses]: Following the second treatment course (of three doses), subsequent treatment courses of 12 mg/day on three consecutive days may be administered in a 12-month period.

      4. All subsequent courses must be administered at least 12 months after the last dose of the prior treatment course.

   C. Authorization shall be reviewed every 12 months. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

IV. Alemtuzumab (Lemtrada) is considered investigational when used:

   A. Concomitantly with other DMTs for multiple sclerosis (see Appendix B).

   B. For non-relapsing forms of MS, such as primary progressive MS (PPMS) or SPMS without active relapses.
V. Alemtuzumab (Lemtrada) is considered investigational when used for all other conditions, including but not limited to:

A. Any cancer indication, including, but not limited to B-cell chronic lymphocytic leukemia (CLL).
B. Post-transplant antibody induction therapy.
C. For the treatment of clinically isolated syndrome (CIS).

Position Statement

Several disease-modifying therapies are used in the treatment of relapsing forms of multiple sclerosis (MS). They help to decrease the number of clinical exacerbations associated with this condition and slow the progression of disability. Relapsing forms of MS include: clinically isolated syndrome (CIS), relapsing-remitting MS (RRMS), and active secondary progressive MS (SPMS).

The intent of the policy is to allow coverage of natalizumab (Tysabri) in patients who failed two prior preferred disease modifying therapies for MS.

There are many disease-modifying therapies (DMTs) for the treatment of MS, as listed in Appendix A. Rituximab may also be used off label for the treatment of relapsing forms of MS.[1]

American Academy of Neurology (AAN) guidelines state:

* DMTs should be offered to patients with relapsing forms of MS.
* The choice of initial DMT should be individualized to consider safety, route of administration, lifestyle, cost, efficacy, adverse effects (AEs), and tolerability.
* Disease activity, adherence, AE profiles, and mechanism of action should be considered when switching DMTs. [1]
* Natalizumab (Tysabri), fingolimod (Gilenya), or alemtuzumab (Lemtrada) should be used in patients with highly active disease. [1]

Individual responses and tolerability of DMTs are unpredictable and may vary between patients. If one DMT provides an inadequate response, another DMT may be effective.

There is no reliable evidence of increased efficacy or safety of one interferon beta product over another in reducing the signs and symptoms of MS or slowing the progression of disease.

The safety and effectiveness of combination use of disease modifying therapies for MS medications has not been established.

Alemtuzumab (Lemtrada) is not recommended as a first or second-line option due to serious safety concerns.

* Alemtuzumab (Lemtrada) has boxed warnings describing an increased risk of autoimmunity, infusion reactions, and malignancies with its use. The FDA labeling states that it should generally be reserved for patients who have had an inadequate response to two or more DMTs for MS.
* Because of these safety concerns, distribution of alemtuzumab (Lemtrada) is restricted with a REMS program for prescribers, health care facilities, and pharmacies.

- Cladribine (Mavenclad) is not recommend as a first-line option or for the treatment of CIS due to serious safety concerns of malignancy and teratogenicity.[2]

**Clinical Efficacy: Alemtuzumab (Lemtrada)**

- Two, randomized, open-label, rater-blinded, 2-year, studies compared alemtuzumab (Lemtrada) with interferon beta-1a in patients with relapsing-remitting multiple sclerosis (RRMS). [3,4]
  * The CARE-MS I trial included previously untreated patients while CARE-MS II trial included patients who had at least one relapse while on an interferon beta product or glatiramer acetate.
  * In each trial, there was a statistically significantly lower annualized relapse rate for patients treated with alemtuzumab (Lemtrada) (22%-35%) compared to interferon beta-1a (40%-51%).
  * Treatment-experienced patients treated with alemtuzumab (Lemtrada) experienced a statistically significant reduction in the rate of disease progression compared to those treated with interferon beta 1a (13% vs 20%, p=0.008). The difference in rates of disease progression was not statistically significant among treatment-naïve patients.

- Extension studies for alemtuzumab (Lemtrada) suggest that efficacy is maintained through at least year five but certain patients with disease activity may require additional courses. Among patients who completed CARE-MS II, 58.0% received just no additional courses of alemtuzumab (Lemtrada) while 30.1% received one additional course at some point in the five-year follow-up period. The most common reason for additional courses was relapse. [5]

- Alemtuzumab (Lemtrada) has not been directly compared to MS DMTs other than interferon beta-1a, nor has it been studied concomitantly with other DMTs.

**Safety**

- Alemtuzumab (Lemtrada) [10]
  * Alemtuzumab (Lemtrada) has boxed warnings for the following:
    - Sometimes fatal autoimmune conditions, such as immune thrombocytopenia and anti-glomerular basement membrane diseases.
    - Serious and life-threatening infusion reactions.
    - An increased risk of malignancies including thyroid cancer, melanoma and lymphoproliferative disorders
  * Due to its significant safety concerns a FDA Risk Evaluation and Mitigation Strategy (REMS) program limits the availability of alemtuzumab (Lemtrada) to certified prescribers, healthcare facilities, and specialty pharmacies.
Regular monitoring is required due to the potential for long-term adverse events. Complete blood count, serum creatinine levels, urinalysis should be collected prior to treatment and at monthly intervals. Thyroid function tests should be conducted prior to treatment and every three months thereafter. Baseline and annual skin exams should be conducted to monitor for melanoma.

**Investigational Uses – Alemtuzumab (Lemtrada)**

The Lemtrada REMS program mitigates off-label use of alemtuzumab (Lemtrada); however, it has been studied in other conditions. Due to a lack of published data, lack of high quality data, or lack of positive data, these conditions are considered investigational. Details of select investigational uses are reported below.

- **B-cell chronic lymphocytic leukemia**
  * A high dose formulation of alemtuzumab (Campath) was approved for the treatment of B-cell chronic lymphocytic leukemia (CLL) but was removed from the market in 2012 to prevent off-label use of Campath in MS. Since 2012, Campath has been available for very limited use in CLL through patient access programs. Alemtuzumab (Lemtrada) is given at a lower dose when used for MS, lower doses are considered investigational for any other condition, including CLL and other cancers.
  * There have been no controlled clinical trials evaluating the use of low-dose (12 mg) alemtuzumab (Lemtrada) in B-cell chronic lymphocytic leukemia.[11-13]
  * High-dose alemtuzumab (Campath) is available for patients with leukemia directly from the manufacturer, free of charge through patient access programs.

- **Post-transplant antibody induction therapy**
  * There are no controlled clinical trials evaluating the use of low-dose (12 mg) alemtuzumab (Lemtrada) in the post-transplant setting.[14,15]
  * The safety and effectiveness of alemtuzumab (Lemtrada) in combination with other disease-modifying MS therapies have not been adequately studied.
### Appendix A: Multiple Sclerosis Forms/Clinical Course Definitions [1,2]

<table>
<thead>
<tr>
<th>Form/Clinical Course Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinically Isolated Syndrome (CIS)</td>
<td>The first clinical presentation that shows characteristics of inflammatory demyelination that could be MS.</td>
</tr>
<tr>
<td>Relapsing-remitting (RRMS)</td>
<td>Characterized by acute relapses that are followed by some degree of recovery. These attacks develop acutely, evolving over days to weeks. Over the next several weeks to months, most patients experience a recovery of function that is often (but not always) complete. Between attacks the patient is neurologically and symptomatically stable.</td>
</tr>
<tr>
<td>Secondary progressive (SPMS)</td>
<td>Defined as sustained progression of physical disability occurring separately from relapses, in patients who previously had RRMS. SPMS may be active or not active. Activity is determined by the presence of ongoing relapses or MRI activity. There are no clinical, imaging, immunologic, or pathologic criteria to determine when a patient transition from RRMS to SPMS, it is usually diagnosed retrospectively.</td>
</tr>
<tr>
<td>Primary progressive (PPMS)</td>
<td>Defined as progression of disability from onset without superimposed relapses. The AAN defines PPMS as the third clinical type characterized by a steady decline in function from the beginning without acute attacks.</td>
</tr>
</tbody>
</table>

### Appendix B: Disease-Modifying Agents Used in the Treatment of Multiple Sclerosis (MS DMTs)

- Alemtuzumab (Lemtrada)
- Cladribine (Mavenclad)
- Dimethyl fumarate
- Diroximel fumarate (Vumerity)
- Fingolimod (Gilenya)
- Glatiramer acetate (Copaxone, Glatopa)
- Interferon beta-1a* (Avonex, Rebif)
- Interferon beta-1b* (Betaseron, Extavia)
- Mitoxantrone
- Natalizumab (Tysabri)
- Ocrelizumab (Ocrevus)
- Peginterferon beta-1a (Plegridy)
- Rituximab ¹
- Siponimod (Mayzent)
- Teriflunomide (Aubagio)

¹ Rituximab is not FDA-approved for use in MS, but has evidence for efficacy
Appendix C: Example Contraindications to Self-Administered Therapy

The member is 13 years of age or younger.

Inability to self-inject due to significant behavioral issues and/or cognitive impairment including, but not limited to, those associated with developmental delay, down syndrome, dementia, or excessive anxiety such as needle phobia.

Preferred self-administered therapy/therapies are relatively contraindicated.

Cross References

| Ocrevus, ocrelizumab (UMP Plans), Medication Manual, Policy No. dru902 |
| Tysabri, natalizumab (UMP Plans), Medication Policy Manual, Policy No. dru901 |

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>HCPCS</td>
<td>J0202</td>
<td>Injection, alemtuzumab (Lemtrada), 1 mg</td>
</tr>
<tr>
<td>ICD-10</td>
<td>G35</td>
<td>Multiple sclerosis</td>
</tr>
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</table>

References


**Revision History**

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<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
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<tbody>
<tr>
<td>12/28/2021</td>
<td>Updated Preferred Self-Administered Therapies (for UMP Members)</td>
</tr>
</tbody>
</table>
| 1/20/2021     | • Clarified reauthorization period  
|               | • Updated Preferred Self-Administered Therapies (for UMP Members) |
| 1/22/2020     | Added continuation of therapy (COT) criteria (no change to intent of coverage criteria). |

*Drug names identified in this policy are the trademarks of their respective owners.*
IMPORTANT REMINDER

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

Description

Filgrastim is a granulocyte-colony stimulating factor (G-CSF) that helps reduce the risk of infections in patients undergoing strong chemotherapy. Filgrastim is available as several different products. This policy applies to the non-preferred products only.

This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA’s Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.
Policy/Criteria

Most contracts require pre-authorization approval of non-preferred filgrastim products (as listed in Table 1) prior to coverage.

I. **Continuation of therapy (COT):** Non-preferred filgrastim products (as listed in Table 1) may be considered medically necessary for COT when full policy criteria below are met, including quantity limit.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. **New Starts (Treatment-Naïve patients):** Non-preferred filgrastim products (as listed in Table 1) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criterion A or B below are met.

A. Treatment with **all** preferred products (as listed in Table 1) have been ineffective, not tolerated, or contraindicated.

**OR**

B. Documented emergent clinical indication for filgrastim (see *Appendix 1*) **AND** there is attestation by the providing clinic that **all** preferred products (as listed in Table 1), are not available for same-day administration.

Table 1: Reference and Biosimilar Pegfilgrastim Products

<table>
<thead>
<tr>
<th>Product name</th>
<th>Formulary status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reference Product</strong></td>
<td></td>
</tr>
<tr>
<td>Neupogen (filgrastim)</td>
<td>Non-preferred/PA required</td>
</tr>
<tr>
<td><strong>Biosimilars</strong></td>
<td></td>
</tr>
<tr>
<td>Granix (tbo-filgrastim)</td>
<td>Preferred/No PA required a</td>
</tr>
<tr>
<td>Zarxio (filgrastim-sndz)</td>
<td>Preferred/No PA required a</td>
</tr>
<tr>
<td>Nivestym (filgrastim-aafi)</td>
<td>Non-preferred/PA required</td>
</tr>
<tr>
<td>Releuko (filgrastim-ayow)</td>
<td>Non-preferred/PA required</td>
</tr>
</tbody>
</table>

*a As a preferred biosimilar, available for coverage without pre-authorization (“no PA required”)
III. Administration, Quantity Limitations, and Authorization Period

A. Pharmacy Services considers all non-preferred filgrastim products (as listed in Table 1) coverable under the pharmacy benefit (as self-administered medications) OR coverable under the medical benefit (as provider-administered medications).

B. Non-preferred product approval for unavailability of a preferred product: Initial authorization will be for three months only. Continued authorization will not be considered solely for unavailability of a preferred product (Zarxio or Granix).

C. All other non-preferred product approvals: Authorization may be reviewed at least annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the medication is providing clinical benefit, such as disease stability or improvement.

Position Statement

Summary[1-5]

- The intent of this policy is to promote the use of biosimilar products that are the lowest overall cost. All filgrastim products are considered safe and effective options.

- This policy allows for:
  * Coverage of non-preferred filgrastim products when all of the preferred filgrastim products are ineffective, not tolerated, or contraindicated.
  * Coverage of non-preferred filgrastim products during an emergent clinical situation in which filgrastim is indicated, and the providing clinic does not have any of the preferred filgrastim products available for administration.

- There is no evidence that any one filgrastim product is safer or more effective than another. Among these products, preferred filgrastim provide the best value for members.

- Hospitals and health-systems have medication formularies developed independent of the health plan. The health plan is unable to cover more expensive products for the convenience of the hospital, health-system, provider, or member. Preferred biosimilar products represent the lowest cost to members and the plan; the use of more expensive products without evidence of superior efficacy or safety is not medically necessary per the member’s contract.
Appendix 1:

<table>
<thead>
<tr>
<th>Emerging clinical indications for filgrastim (same-day administration) a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute radiation syndrome.</td>
</tr>
<tr>
<td>Aplastic anemia.</td>
</tr>
<tr>
<td>Harvesting of peripheral blood stem cells.</td>
</tr>
<tr>
<td>Neutropenia (documented; including but not limited to febrile, chronic, chemotherapy-induced, agranulocytosis).</td>
</tr>
<tr>
<td>Patient is being discharged from an inpatient hospital stay and has a documented ongoing indication for filgrastim (filgrastim doses given as part of the inpatient stay is not subject to pre-authorization).</td>
</tr>
</tbody>
</table>

a The need for filgrastim in the FUTURE is not considered an “Emergent clinical indication,” such as filgrastim for use with scheduled chemotherapy (not yet started).

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>HCPCS</td>
<td>J1442</td>
<td>Injection, filgrastim (Neupogen), excludes biosimilars, 1 microgram</td>
</tr>
<tr>
<td>HCPCS</td>
<td>Q5110</td>
<td>Injection, filgrastim-aafi (Nivestym), biosimilar, 1 microgram</td>
</tr>
</tbody>
</table>

References
Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Revision Summary</th>
</tr>
</thead>
</table>
| 6/17/2022     | - Added Releuko, filgrastim-ayow to policy, a new biosimilar.  
- Modify criteria wording, for operational clarity (no change to intent of the criteria with this annual update).  
- Addition of a product table, to delineate the preferred/non-preferred and reference product/biosimilars. |
| 7/16/2021     | No criteria changes with this annual update. |
| 7/22/2020     | Added continuation of therapy criteria. No change to intent of policy. |
| 10/23/2019    | New UMP-specific policy. Effective 1/1/2020. The intent of the policy is to cover non-preferred filgrastim products when preferred products are not a treatment option (ineffective, not tolerated, or contraindicated) or unavailable for administration for an emergent clinical indication. |

*Drug names identified in this policy are the trademarks of their respective owners.*
**Medication Policy Manual**

**Topic:** Cabenuva, cabotegravir/rilpivirine (UMP plans)  
**Policy No:** dru906  
**Date of Origin:** November 15, 2021  
**Committee Approval Date:** October 15, 2021  
**Next Review Date:** September 2022  
**Effective Date:** November 15, 2021

**IMPORTANT REMINDER**

This Medication Policy has been developed through consideration of medical necessity, generally accepted standards of medical practice, and review of medical literature and government approval status.

*Benefit determinations should be based in all cases on the applicable contract language.* To the extent there are any conflicts between these guidelines and the contract language, the contract language will control.

The purpose of Medication Policy is to provide a guide to coverage. Medication Policy is not intended to dictate to providers how to practice medicine. Providers are expected to exercise their medical judgment in providing the most appropriate care.

**Description**

Cabenuva (cabotegravir/rilpivirine) is a provider-administered once monthly injection that is a complete treatment regimen for HIV-1.

*This policy applies to the Washington State Health Care Authority (HCA) Uniform Medical Plan (UMP) only. The UMP is a self-funded health plan offered through the Washington State HCA's Public Employees Benefits Board (PEBB) Program and School Employees Benefits Board (SEBB) Program and administered by Regence BlueShield.*
Policy/Criteria

Uniform Medical Plan (UMP) contracts require pre-authorization approval of Cabenuva (cabotegravir/rilpivirine) prior to coverage.

I. Continuation of therapy (COT): Cabenuva (cabotegravir/rilpivirine) may be considered medically necessary for COT when the patient was established on therapy prior to current health plan membership AND attestation that the medication was covered by another health plan.

*Please note:* Medications obtained as samples, coupons, or promotions, paying cash for a prescription (“out-of-pocket”) as an eligible patient, or any other method of obtaining medications outside of an established health plan benefit (from your insurance) does NOT necessarily establish medical necessity. Medication policy criteria apply for coverage, per the terms of the member contract with the health plan.

II. New starts (treatment-naïve patients): Cabenuva (cabotegravir/rilpivirine) may be considered medically necessary when there is clinical documentation (including, but not limited to chart notes) that criteria A through D below are met.

A. A diagnosis of HIV-1.

AND

B. The patient is antiretroviral-therapy-experienced with virologic suppression for at least three months (HIV-1 RNA < 50 copies/mL).

AND

C. There is a documented clinical rationale supporting the need for a long-acting treatment regimen. Examples include, but are not limited to, cognitive impairment, behavioral conditions, diagnosed swallowing disorder, active substance use disorder, unstable housing, or low health literacy.

AND

D. The patient is managed by or in consultation with a specialist in HIV, including but not limited to infectious disease.

II. Administration, Quantity Limitations, and Authorization Period

A. Regence Pharmacy Services considers Cabenuva (cabotegravir/rilpivirine) coverable only under the medical benefit (as a provider-administered medication)

B. When pre-authorization is approved, Cabenuva (cabotegravir/rilpivirine) will be authorized in quantities up to 1 initiation kit (600mg cabotegravir/900mg rilpivirine) followed by 1 maintenance kit (400mg cabotegravir/600mg rilpivirine) every 28 days for 12 months.

C. Authorization may be reviewed annually. Clinical documentation (including, but not limited to chart notes) must be provided to confirm that current medical necessity criteria are met, and that the patient is adherent.
III. Cabenuva (cabotegravir/rilpivirine) is considered investigational when used for all other conditions.

Position Statement
- The intent of this policy is to reserve use of cabotegravir/rilpivirine (Cabenuva) for patients with virologically suppressed HIV-1 with a clinical need for a long-acting treatment regimen.
- Cabotegravir/rilpivirine (Cabenuva) is an intramuscularly administered complete antiretroviral regimen approved for the treatment of HIV-1 to replace the current antiretroviral regimen in those who are virologically suppressed (HIV-1 RNA less than 50 copies per mL) on a stable antiretroviral regimen with no history of treatment failure and with no known or suspected resistance to either cabotegravir or rilpivirine. \[1\]
- Treatment guidelines define virologic suppression as a viral load that is less than 50 copies/mL for at least three months. \[2\]

Dosing \[1\]
- Cabotegravir/rilpivirine (Cabenuva) is administered intramuscularly by a healthcare professional.
- Prior to starting cabotegravir/rilpivirine (Cabenuva), an oral lead-in should be used for at least 28 days to assess tolerability.
- Initial dosing is a single 600-mg (3-mL) gluteal intramuscular injection of cabotegravir and a single 900-mg (3-mL) gluteal intramuscular injection of rilpivirine.
- Continued monthly dosing is a single 400-mg (2-mL) gluteal intramuscular injection of cabotegravir and a single 600-mg (2-mL) gluteal intramuscular injection of rilpivirine.

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>ICD-10</td>
<td>B20</td>
<td>Human immunodeficiency virus (HIV) disease</td>
</tr>
<tr>
<td>ICD-10</td>
<td>Z21</td>
<td>Asymptomatic human immunodeficiency virus (HIV) infection status</td>
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References
### Revision History

<table>
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<tbody>
<tr>
<td>10/15/2021</td>
<td>New policy (effective 11/15/2021). Limits coverage to the setting in which it was studied and has a labeled indication.</td>
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</table>

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