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REPORT

Washington Health Care Authority Provider Network Adequacy Analysis

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I. INTRODUCTION AND SCOPE OF WORK

A combination of state initiatives and federal rulemaking has prompted the state of Washington's Health Care Authority (HCA) to focus on improving its ability to monitor the adequacy of its Medicaid provider networks. HCA is currently undergoing a significant expansion of Medicaid managed care that will cover all physical and behavioral health services, including mental health and substance use disorder services, by 2018. The expansion of managed care will be accompanied by new methods to pay for value instead of volume, integrate care and social supports for people with both physical and behavioral health conditions, and build healthy communities and people through prevention and early mitigation of disease throughout their lives. Each of these goals requires robust networks of high quality providers that can deliver care to covered beneficiaries where and when they need it.

In 2016, the Centers for Medicare & Medicaid Services (CMS) also issued new regulations that require states to ensure that their Medicaid managed care provider networks have adequate capacity to serve enrollee needs (42 CFR 428.207). States must not only ensure that provider networks are adequate (42 CFR 438.68) but also that services are available and accessible in a timely manner (42 CFR 428.206). To fulfill these requirements, CMS envisions that states will use a thoughtful, data-informed process to set provider network adequacy (hereafter, "network adequacy") standards for primary care, specialty, behavioral health, and other provider types that serve adults and children. States will monitor these standards using prospective analyses (for example, mapping enrolled beneficiaries to the providers they would be expected to use) and retrospective analyses (for example, calling providers listed in directories to verify their contact information and ensure appointment availability).

HCA contracted with Mathematica Policy Research to develop a proof of concept for new methods and/or tools to improve its existing approach to monitoring Medicaid network adequacy, streamline processes, and ensure compliance with all federal regulations. To these ends, we developed and tested a proof of concept using claims and encounter data from two regions of the state; we present our approach and the results of this testing in Section II of this report. Section III outlines potential applications of the proof of concept to analyze networks serving fee-for-service (FFS) and American Indian/Alaska Native (AI/AN) populations. To inform our proof of concept and recommendations to HCA, we conducted a series of semi-structured interviews with commercial off-the-shelf (COTS) vendors with products that monitor network adequacy (Appendix B) and state Medicaid officials with long experience in managed care (Section IV). These interviews helped us to understand the functionality and performance of existing network adequacy monitoring products, and learn about best practices from other states. We present approaches to collecting and validating the newly required data elements (Appendix A). Finally, we offer some recommendations and strategic approaches for consideration in Section V.

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II. TESTING THE PROOF OF CONCEPT

A. Proof of concept

To assist HCA in understanding what new information will be required by CMS regulations regarding the adequacy of Medicaid managed care provider networks, we developed tables that outline the required data and propose ideas for how HCA can capture and validate these elements (Appendix A), as well as short- and long-term approaches for compliance with the new federal rules.

The proposed approach to network adequacy assessment goes beyond the measures envisioned in the new CMS regulations. We proposed to examine HCA's managed care provider network adequacy through monitoring "realized access" - analyzing encounter data to quantify the actual amounts of care beneficiaries receive through their managed care network of providers. Realized access describes the extent to which beneficiaries actually access health care as reflected in encounters and claims. The proof of concept was intended to test the feasibility of this approach and develop some measures that could identify gaps in realized access.

The method utilized in our proof of concept builds on HCA's existing network monitoring tools. Currently, HCA captures and stores network adequacy data reported by managed care organizations (MCOs) in Excel spreadsheet formats. These spreadsheets contain key information about networks and the providers with which they contract, including provider type; plan ID; unique identifier (such as National Provider Identifier [NPI]); address; estimated capacity by provider; contract type (State Children's Health Insurance Program [SCHIP], Apple Health [AH], Apple Health Affordable Care [AHAC], Healthy Options Blind and Disabled [HOBD], Healthy Options Foster Care [HOFC]); and whether the provider is still accepting new clients, by contract type.

The proof-of-concept analysis tested both the process and a selection of measures that could identify gaps in realized access (gap outcomes). We tested the process by developing procedures for linking beneficiary, provider, and encounter data from ProviderOne (the system that coordinates Medicaid managed care organizations in the state of Washington) using data derived from the fourth quarter (Q4) of fiscal year 2015 to the third quarter (Q3) of fiscal year 2016 for encounters. We then linked the data to HCA's network monitoring spreadsheets using provider identification information and analyzed the linked data to examine selected gap outcomes. Because it was outside of our testing scope to consider all possible measures of access, we selected representative measures that could illustrate the usefulness of the proof of concept in measuring the extent of service delivery and service utilization profiles for certain subpopulations of beneficiaries. Therefore, we restricted our analysis to five provider categories (primary care physicians, specialists, skilled nursing facilities, urgent care, and mental health); two eligibility groupings (Temporary Assistance to Needy Families [TANF] and other Medicaid disability and Aged, Blind, and/or Disabled [ABAD]); three subpopulation groups (beneficiaries with a diagnosis of diabetes or ischemic heart disease [IHD] and pregnant beneficiaries); and two age groupings (beneficiaries under age 18 or over age 65). ProviderOne staff provided mapping for identifying beneficiary groupings.

Note that the proof-of-concept testing did not test data from multiple years or for all areas in the state of Washington. Instead, the data for the study were restricted in the following ways:

- HCA network adequacy spreadsheet monitoring data derived from Q4 fiscal year 2015 to Q3 fiscal year 2016
- ProviderOne claims and encounter data from Q4 calendar year 2015 through Q3 2016
- Examination of realized access in Clark, Chelan, Douglas, Grant, King, and Skamania counties

1. Process validation

To date, HCA has used an Excel-based system to monitor provider network adequacy. However, our proof-of-concept testing required a flexible development environment with the ability to link data across ProviderOne and the current provider network adequacy data set. To support these needs, we used SAS Enterprise Guide 7.1 to load, merge, and process data files, and analyze the resulting database. All processes needed to support the proof of concepts were successful, including the following:

- Extracting, loading, and flattening the provider network adequacy Excel spreadsheet
- Loading ProviderOne beneficiary, provider, and encounter data from the selected counties
- Linking HCA network adequacy flattened files to ProviderOne provider data using NPI
- Linking beneficiary information and encounter information from ProviderOne to the combined provider information through NPI
- Identifying three population study groups using diagnoses codes for diabetes, pregnancy, and Ischemic Heart Disease (IHD) in ProviderOne encounters, and age from ProviderOne beneficiary files
- Developing queries that calculated services delivered by providers and the number of unique beneficiaries to which they delivered services during the study period
- Developing queries that identified high and low outliers
- Developing queries that calculated the mean and median number of encounters per beneficiary for the three subpopulations, two eligibility groups, and two age groups
- Developing queries that calculated the mean and median number of providers seen per beneficiary for the three subpopulations, two eligibility groups, and two age groups
- Identifying beneficiaries who saw only one provider during time period
- Developing queries that compare access measures for beneficiaries whose primary language was not English to those whose primary language was English
- Validating SAS code for loading, data transformation, and analytic queries

2. Proof-of-concept testing

Our proof of concept examined two types of measures using the linked data. First, we explored a set of provider-focused measures that considered how frequently providers were

delivering care to Medicaid beneficiaries and the number of beneficiaries they saw. Next, we explored a set of beneficiary-focused measures considering patterns in the number of providers that individual beneficiaries saw and the volume of care they received from those types of providers. In examining both sets of measures, we looked for evidence of gaps in provider network adequacy, as summarized in the sections that follow.

B. Provider-focused measures

Provider-focused measures used data from both ProviderOne and the network adequacy Excel spreadsheets to analyze how frequently providers delivered services and how many beneficiaries they served during the study period. We began by computing averages by provider type (Table II.1) to create a benchmark for typical performance, against which we might identify particularly high-volume providers. Studying high-volume providers can help HCA understand how many beneficiaries can be served by provider types and the threat to overall network adequacy posed by the withdrawal of high-volume providers, if that were to occur.

Although HCA may benefit from conducting a more thorough analysis of high-volume providers than we performed during the proof of concept testing, a review of average encounters and beneficiaries per provider reveals several potential avenues of investigation. For example, the mean number of encounters and beneficiaries served is notably higher than the median for nearly all provider types and plans, suggesting that plans contracts with one or more very high-volume providers for each provider type. Further analysis of realized access and contracted provider networks across plans based on diagnostic and overall case mix differences may provide more insight. Also means and medians of beneficiaries and encounters vary among plans in ways that suggest access analysis based on diagnostic and case mix of the populations served also provide insights.

Table II.1. Average encounters and beneficiaries for network providers

Provider type	Unique count of providers[a]	Mean		Median	
		Encounters per provider	Unique beneficiaries served per provider	Encounters per provider	Unique beneficiaries served per provider
All plans					
All types	9,917	158.4	91.4	58.0	32.0
Primary Care Provider	4,446	225.5	129.6	83.0	48.0
Specialist	7,894	173.6	101.2	66.0	37.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	13	552.2	306.6	93.0	86.0
Mental Health	864	64.4	25.1	22.0	8.0
MCO 1					
All types	5,927	26.1	14.9	10.0	6.0
Primary Care Provider	2,787	34.6	19.7	14.0	8.0
Specialist	5,014	27.4	15.7	11.0	6.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	1	42.0	39.0	42.0	39.0
Mental Health	340	19.7	7.5	6.0	3.0
MCO 2					
All types	6,520	29.6	17.0	12.0	7.0
Primary Care Provider	3,026	40.8	23.1	17.0	10.0
Specialist	5,476	28.9	16.8	12.0	7.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	1	30.0	27.0	30.0	27.0
Mental Health	340	19.3	8.8	6.0	3.0
MCO 3					
All types	7,177	53.4	31.9	12.0	7.0
Primary Care Provider	2,930	85.8	51.0	11.0	7.0
Specialist	5,969	56.0	33.6	13.0	8.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	2	386.5	313.0	386.5	313.0
Mental Health	527	28.2	12.3	7.0	3.0
MCO 4					
All types	8,802	72.4	42.3	25.0	14.0
Primary Care Provider	3,932	104.6	61.5	38.0	23.0
Specialist	7,201	78.2	46.1	28.0	16.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	9	690.4	360.2	367.0	227.0
Mental Health	720	36.0	12.3	14.5	5.0
MCO 5					
All types	6,056	33.5	18.3	13.0	7.0
Primary Care Provider	2,795	43.0	22.6	14.0	9.0
Specialist	5,166	34.3	19.2	8.0	14.0
Skilled Nursing Facility	-	-	-	-	-
Urgent Care	7	17.1	7.9	8.0	7.0
Mental Health	146	11.4	7.1	4.0	2.0

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties

[a] Unique counts by provider type will not sum to unique counts for all provider types, because some providers are listed as multiple types, and only providers from the Network Adequacy Excel spreadsheet (MCO providers) have provider type flags.

Next, we investigated the relationship between the size of an MCO and the volume of beneficiaries served. To do so, we linked encounter data from ProviderOne with the MCO provider network configuration data stored in HCA's network monitoring spreadsheet. As shown in Table II.2, the overall size of an MCO's provider network is not proportionate to its volume of beneficiaries served or its overall number of encounters. For example, the networks in the study sample ranged between 5,927 and 8,802 providers. However, MCO 5 served approximately 43,000 beneficiaries with 6,000 providers, or 7.1 beneficiaries per provider, whereas the MCO 2 served about the same number of beneficiaries with 500 fewer providers, or 5.9 beneficiaries per provider. MCO 4 network was a notable outlier, serving three times as many beneficiaries as the MCO 5 network with only 50 percent more providers (15.4 beneficiaries per provider). Similarly, the average number of encounters per provider ranged substantially between networks, from 26.1 for MCO 1 to 72.4 for MCO 4. Although these variations between MCOs may be the result of differences in patient case mix, organizational structure, geography, and other factors, realized access as measured by volume of treatment clearly is not proportionate to network size.

Table II.2. Volume of providers, encounters, and beneficiaries, by MCO

	MCOs					
Variable	All MCOs	MCO 1	MCO 2	MCO 3	MCO 4	MCO 5
Providers	9,917	5,927	6,520	7,177	8,802	6,056
Encounters	1,570,966	154,808	193,207	383,056	637,317	202,578
Beneficiaries	324,110	30,990	38,419	83,863	135,865	43,027
Average number of encounters per provider	158.4	26.1	29.6	53.4	72.4	33.5
Average number of beneficiaries per provider	32.7	5.2	5.9	11.7	15.4	7.1

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Note: Number for beneficiaries for all MCOs is an unduplicated count for the study period. Some beneficiaries were in more than one MCO.

We then examined providers that are either high or low outliers in the number of beneficiaries served or encounter volume, and identified MCO networks in which they participate as reported in the network adequacy Excel spreadsheets. Identifying providers who are reported as belonging to an MCO network but serve few beneficiaries allows a more realistic assessment of provider networks. This identification also supports HCA in negotiating with MCOs about which providers are likely to actually serve beneficiaries and inquiring about low-volume providers, especially ones associated with critical services. For the counties included in our analysis, we found 280 providers with only one claim during the study period. Table II.3 presents a sample of these providers; note that many were nominally part of more than one MCO network.

Table II.3. Providers with lowest number of encounters

NPI	Beneficiaries	Encoun - ters	First name	Last name	MCO 1	MCO 2	MCO 3	MCO 4	MCO 5	Specialty
0000000000	1	1	XXX	XXX	1	1	1	0	1	Social Worker
0000000000	1	1	XXX	XXX	0	1	1	1	1	Master's Level Counselor
0000000000	1	1	XXX	XXX	0	0	0	1	0	Adult Health Nurse Practitioner
0000000000	1	1	XXX	XXX	0	1	0	1	1	Psychologist
0000000000	1	1	XXX	XXX	1	1	1	1	1	Obstetrics and Gynecology

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Identifying high-volume providers is also helpful in understanding the actual service potential of providers making up a reported network. If a high-volume provider leaves the network, the impact might be larger than if a low-volume provider exited. The current change-reporting system and provider network adequacy analyses do not account for the volume of beneficiaries or encounters associated with individual providers. Figure II.1 illustrates how a small number of providers may be responsible for a high numbers of encounters; whereas the bulk of the providers were associated with 1,000 encounters or fewer during the study period, some providers had 2,500 or more encounters. Further details on high-volume providers can be found in Table II.4. The current change-reporting system and provider network adequacy analyses do not account for the volume of beneficiaries or encounters associated with individual providers. With this information, HCA would be better prepared to anticipate impacts and review MCOs' proposals to mitigate provider departures from their network.

Figure II.1. Distribution of providers, by number of encounters

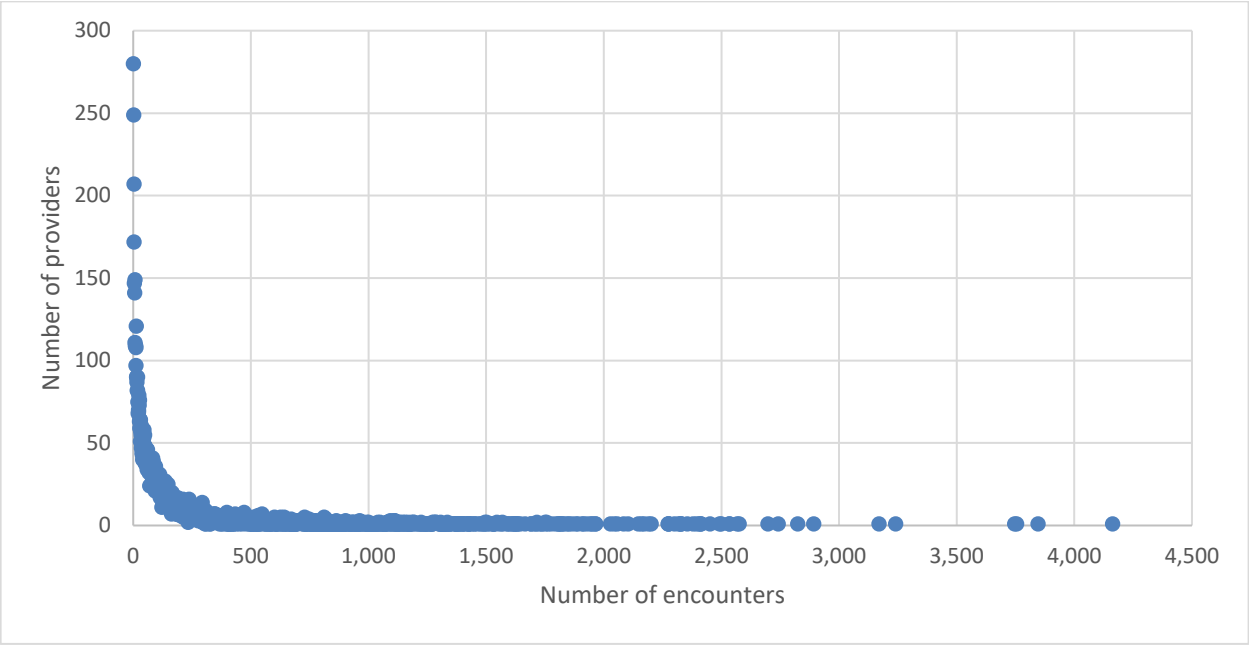

Table II.4. Providers with highest number of encounters

NPI	Beneficiaries	Encoun - ters	First name	Last name	MCO1	MCO2	MCO3	MCO4	MCO5	Specialty
0000000000	4606	9,061	XXX	XXX	0	0	1	1	0	Family Medicine w/ OB
0000000000	3248	8,263	XXX	XXX	1	1	0	0	0	Family Medicine
0000000000	3441	6,482	XXX	XXX	1	1	1	1	0	Family Medicine
0000000000	2414	5,444	XXX	XXX	1	1	1	1	0	Family Medicine
0000000000	1801	4,163	XXX	XXX	1	1	1	1	1	Family Medicine

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Because access to specialists is an important element of network adequacy, we identified provider taxonomy codes (provider types) associated with particularly low and high numbers of beneficiaries and encounters. Low and high values from computing number of beneficiary interactions and encounters by specialist provider types are displayed below: Low (Table II.5) and High (Table II.6). Many types of specialists that are desirable for meeting specialty needs in the Medicaid and CHIP programs are in fact serving beneficiaries in some volume (Table II.6). For example, during the study period five neuroradiology specialists saw nearly 140 beneficiaries in the five county area. We do not know if this is adequate network response without more information on the diagnoses of the populations served, but it does indicate an active specialty and an opportunity for further analysis to determine adequacy.

Note that the analytic effort did not aggregate related taxonomy codes, and we found that related taxonomy codes appear among the low-volume as well as high-volume lists. For example, rehabilitation, substance use disorder, and substance use rehabilitation facility served only one beneficiary during the study period, and four radiology or imaging taxonomies appear on the high-volume list. Because taxonomy is highly dependent on how providers and MCOs describe their specialties, a more formal process for collecting and editing taxonomy data would improve the usefulness of this analysis.

Table II.5. Provider taxonomy codes showing encounters with only one beneficiary during the study period

Taxonomy code	Unique NPI count	Mean per provider	
		Beneficiaries	Encounters
103TB0200X Cognitive & Behavioral	1	1	1
174H00000X Health Educator	1	1	1
207ND0101X MOHS-Micrographic Surgery	4	1	1
207PE0005X Undersea and Hyperbaric Medicine	1	1	2
207RA0000X Adolescent Medicine	1	1	1
207RS0010X Sports Medicine	4	1	1
2080P0008X Neurodevelopmental Disabilities	1	1	1
2080S0012X Sleep Medicine	1	1	2
2084A0401X Addiction Medicine	1	1	1
2084V0102X Vascular Neurology	1	1	1
208VP0014X Interventional Pain Medicine	1	1	3
261QE0800X Endoscopy	1	1	1
261QI0500X Infusion Therapy	3	1	1
261QP3300X Pain	1	1	1
261QR0405X Rehabilitation, Substance Use Disorder	1	1	1
282E00000X Long Term Care Hospital	1	1	3
283X00000X Rehabilitation Hospital	3	1	1
324500000X Substance Abuse Rehabilitation Facility	1	1	1
332900000X Non-Pharmacy Dispensing Site	1	1	1
363LP0222X Pediatrics, Critical Care	1	1	1
364SE0003X Emergency	1	1	1
207RR0500X Rheumatology	5	1	1
111N00000X Chiropractor	5	1	2
103K00000X Behavioral Analyst	7	1	9

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Table II.6. Provider taxonomy codes showing service to highest numbers of beneficiaries during the study period

Taxonomy Code	Unique NPI Count	Mean per provider	
		Beneficiaries	Encounters
261QF0400X Federally Qualified Health Center (FQHC)	693	263	456
364SF0001X Family Health	5	261	406
2080A0000X Adolescent Medicine	24	206	303
2085N0700X Neuroradiology	5	138	161
2085P0229X Pediatric Radiology	14	116	134
152WP0200X Pediatrics	3	107	135
207QS0010X Sports Medicine	11	103	174
363LP2300X Primary Care	9	99	146
152W00000X Optometrist	109	97	116
163WW0101X Women's Health Care, Ambulatory	2	92	124
261QR1300X Rural Health	387	77	149
2083P0500X Preventive Medicine/Occupational Environmental Medicine	2	75	103
207PP0204X Pediatric Emergency Medicine	2	73	75
2080P0204X Pediatric Emergency Medicine	14	67	69
163WG0600X Gerontology	1	62	102
207NP0225X Pediatric Dermatology	1	59	88
152WC0802X Corneal and Contact Management	4	58	66
207KA0200X Allergy	3	56	193
2084S0012X Sleep Medicine	6	55	112
261QM1300X Multi-Specialty	517	55	96
251V00000X Voluntary or Charitable	49	54	66
2085R0202X Diagnostic Radiology	268	53	65
2085B0100X Body Imaging	6	51	87
261QC1500X Community Health	13	46	80

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

C. Beneficiary-focused measures

With the new regulations on Medicaid managed care, CMS has encouraged states to develop methods that support predicting and assessing provider network need based on population characteristics and projected service needs. In Medicaid, rate-setting adjustments are usually made for age, gender, eligibility groups, and average risk score to account for expected differences in the volume and cost of care along these dimensions.

For this study we were unable to obtain risk scores used by HCA in rate setting, but were able to create population groups based on eligibility groupings and for selected diagnoses. Although other subpopulations are likely of interest, we constructed groups for proof of concept testing to examine eligibility groupings (Aged, blind, and/or disabled (ABAD) and other), diagnosis categories (diabetes, ischemic heart disease, and pregnancy) and two age groupings (children and aged) to explore the effects of considering population differences in predicting and assessing provider network adequacy using data in ProviderOne.

In this proof of concept, Tables II.7 through II.10 demonstrate the ability to examine individuals and groupings of beneficiaries regarding their experience with providers. The groupings are representative of the future development of the concept to include expected values for different kinds of beneficiaries and the development of models that anticipate provider need based on those characteristics.

The results found in Tables II.7 through II.10 largely confirm expectation about service utilization among subpopulations; we found that ABAD beneficiaries utilize services at nearly double the rate of beneficiaries eligible for other reasons, beneficiaries with ischemic heart disease utilize services more than beneficiaries who are pregnant or are diagnosed with diabetes. Population groups receiving care from a large numbers of providers, such as beneficiaries with ischemic heart disease, may reflect needs and preferences or constraints on availability with preferred providers, and may benefit from care coordination.

Although these results are interesting and encouraging, they do not by themselves indicate a gap in care. For example, further investigation of beneficiaries who are visiting many different providers may reveal that they are seeing multiple primary care physicians - suggestive of access problems - or that they are meeting with multiple different specialists, which is typical of patients in poor health. Alternatively, while seeing only one provider in the one-year study period is not indicative of a provider network gap nor of a gap in care, it does suggest an area for further network analysis. More specific analyses of diagnosis, associated specialty providers, and geographic areas may also provide insights into gaps in provider availability.

Table II.7. Eligibility group

		Mean		Median	
Beneficiary eligibility	Unique count	Encounters per beneficiary	Providers per beneficiary	Encounters per beneficiary	Providers per beneficiary
Other medical eligibility	303,426	4.53	2.67	3.00	2.00
Aged, blind, and/or disabled (ABAD)	20,675	9.44	4.60	5.00	3.00

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Table II.8. Population health

Beneficiary diagnosis	Unique count	Mean		Median	
		Encounters per beneficiary	Providers per beneficiary	Encounters per beneficiary	Providers per beneficiary
Diabetes	15,960	10.03	4.57	7.00	3.00
Ischemic heart disease (IHD)	3,029	15.86	7.38	11.00	5.00
Pregnancy	7,857	9.45	5.22	8.00	4.00

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

Table II.9. Beneficiary age

Beneficiary age	Unique count	Mean		Median	
		Encounters per beneficiary	Providers per beneficiary	Encounters per beneficiary	Providers per beneficiary
Children (Eighteen and under)	141,364	3.61	2.37	2.00	2.00
Aged (Sixty Five and Older)[a]	17	8.65	3.82	5.00	2.00

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

[a] Few over-65 beneficiaries appeared in the encounter data provided for the counties studied.

Table II.10. Beneficiaries seeing only one provider

Beneficiary type	Unique count of beneficiaries	Number of beneficiaries seeing only one provider	Percent of beneficiaries seeing only one provider
Diabetes	15,960	3,228	20.2
IHD	3,029	279	9.2
Pregnancy	7,857	806	10.3
Child	141,364	61,191	43.3
Elderly	17	5	29.4

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

D. Language other than English

New regulations from CMS also encourage consideration of beneficiaries' primary language and provider language capabilities. Using beneficiary files from ProviderOne, we examined the average numbers of encounters and of providers seen per beneficiary by primary language. Beneficiaries whose primary language is not English received, on average, slightly fewer services and saw fewer providers (Table II.11), though this may be due to case mix or other population differences. However investigating which providers are favored by beneficiaries who

do not speak English as a primary language may help HCA to understand whether a specific provider is crucial in a network to serve that subpopulation. These findings suggest that further analysis of provider language capabilities may prove fruitful.

Table II.11. Language other than English

Beneficiary language	Unique count	Mean		Median	
		Encounters per beneficiary	Providers per beneficiary	Encounters per beneficiary	Providers per beneficiary
Language English	255,216	4.71	2.75	3.00	2.00
Language other than English	52,582	4.24	2.55	3.00	2.00

Source: Network Adequacy spreadsheets linked to ProviderOne data Q4 2015 through Q3 2016 for Clark, Chelan, Douglas, Grant, King, and Skamania counties.

E. Conclusion

The measures of realized access that we tested are both feasible and valuable in understanding provider network adequacy. The process testing demonstrated that provider information from provider enrollment stored in ProviderOne and provider data in spreadsheets from network adequacy plan reporting can be linked to beneficiary and encounter data in ProviderOne. With this linked dataset, we were able to produce several provider-focused and beneficiary-focused measures upon which HCA can build to understand how beneficiaries are accessing care within the reported provider networks and to support identification of critical providers whose patterns of care delivery make them especially important for ensuring network adequacy. The concepts used in this test can be extended to analyze more beneficiary subpopulations and different provider characteristics and to produce more detailed analyses of the populations and characteristics we began exploring through this proof of concept. "Realized access" analysis over time will allow HCA to understand how the described networks translate into actual access to services. In addition, plans and similarly defined geographic areas can be compared to each other. Results can be used to calibrate MCO descriptions of their networks to understand how many services the contracted providers represent in actual service delivery. If plans inform HCA about the departure of a provider, the impact on service delivery can be quantified.

III. APPLICATION OF CONCEPTS TO FFS/AI/AN

In November 2015, CMS published final rules designed to ensure that states' FFS Medicaid payments comply with the access standards in Section 1902(a)(30)(A) of the Social Security Act (SSA) (80 FR 67576, November 2, 2015). These rules added significant new procedural requirements to FFS Medicaid by requiring states to develop an "access monitoring review plan" to evaluate enrollees' access to certain Medicaid services. (These plans exclude managed care populations or those covered by a federal waiver program.) HCA published its first access monitoring review plan on October 3, 2016, focusing on the following services provided under an FFS arrangement:

- Behavioral health services
- Pre- and post-natal obstetric services, including labor and delivery
- Home health services
- Primary care services
- Physician specialist services

The plan describes the statewide provider network and administrative services and functions to support FFS beneficiaries and providers. However, it does not replicate the analyses of access by geography that HCA conducts in overseeing managed care provider network adequacy. HCA has moved most beneficiaries into managed care; however, of the remaining FFS population, a significant portion is composed of AI/AN beneficiaries.

Mathematica was charged with advising HCA about ways that Medicaid managed care provider network adequacy monitoring approaches could be extended to the FFS population. In this section of the report, we discuss the potential to apply our proof-of-concept measures to examine implicit FFS provider "networks," examine how the existing MCO provider network monitoring processes could be integrated with FFS network monitoring to improve both, and discuss how the FFS monitoring would also be improved through our recommendations to improve MCO monitoring.

A. Applying the proof of concept to FFS/AI/AN populations

For this project, we proposed and tested the concept that HCA could examine its managed care network adequacy by analyzing encounter data to quantify the actual amounts of care beneficiaries receive through the provider networks reported by MCOs. This concept of realized access links beneficiary, provider, and claims and encounter data from ProviderOne to currently collected provider network adequacy data to examine how many services different providers deliver and how many providers beneficiaries use when they receive services. Based on our interview with the manager of the Office of Provider Enrollment at HCA, we understand that HCA will soon upgrade and modernize the provider enrollment process to capture additional fields and to add MCO providers, who currently do not have to enroll. Currently providers enter their information during the FFS enrollment process via a web portal or on paper; the information is then edited and stored on ProviderOne. Enrollment captures all providers' service locations. Providers also report their taxonomy, including specialty. Provider enrollment also

verifies NPI and edits other submitted data. Because the data on beneficiaries, providers, and encounters used in our realized access analysis are already on ProviderOne, the analysis we completed for MCOs can also be applied to those providers registered to deliver services on an FFS basis.

Specifically, the proof of concept includes provider-focused measures of access and beneficiary-focused measures. The provider-focused measures examine how many services providers in the network deliver to Medicaid and CHIP beneficiaries, and identify outliers for high and low delivery of services. Just as we identified provider characteristics and outliers in managed care, HCA could identify those FFS providers providing few and many services, and conduct these analyses by provider specialty. The beneficiary-focused measures examine how many providers beneficiaries use and what type of provider they actually interact with when they receive care. The beneficiary-focused approach is designed to support population health approaches and to facilitate understanding and project future needs for provider quantity and specialty based on diagnosis and demographic characteristics. For the proof of concept, we examined access to providers for selected eligibility groups, diagnostic categories, age groups, and primary language. This general approach could be extended to other beneficiary subpopulations particularly relevant to FFS care delivery.

B. Existing network adequacy processes and data application to FFS/AI/NA

Just as the analytic processes we developed to look at realized access for managed care networks could be replicated for FFS services, some of the existing processes for network adequacy monitoring in managed care could be applied to FFS. Currently, the monitoring process for MCOs uses Optum Geo Network and GeoCoder products to compute latitude and longitude for providers and compute an imputed distance for beneficiaries within a zip code to travel to that provider. Because HCA already owns this product, it could be used with ProviderOne provider data files to assign a geographic location to FFS providers and compute distances and travel times for beneficiaries not enrolled in MCOs. This approach would provide HCA with a good start toward FFS improvements without much effort and investment.

Our proof-of-concept testing successfully extracted the network adequacy Excel spreadsheet files into a database format and then linked them to ProviderOne provider data using NPIs. These files could provide HCA with extensive data on MCO-contracted providers, which can be used to supplement data from voluntarily enrolled MCO providers and provide additional information on providers offering services under both FFS and managed care.

C. Recommended changes to FFS and MCO monitoring

To improve the MCO provider network adequacy monitoring process, we recommend that HCA convert the MCO network adequacy spreadsheet-based approach to a database and also geocode provider and beneficiary data in ProviderOne (see Section V for further discussion). These changes would allow HCA to conduct more precise time-and-distance studies than COTS tools currently provide and allow retrospective spatial analysis of provider service delivery for both FFS and MCOs. As described in the COTS tools comparisons (see Appendix B), both the Quest and Optum products use a weighted distribution of the population within a zip code; for

privacy reasons, neither product stores detailed beneficiary location information. HCA does not have this limitation. ProviderOne geocoding would add a valuable analytic dimension to measures of realized access by allowing retrospective time-and-distance studies for subpopulations of interest.

HCA has minimum network adequacy standards in place with respect to contracted MCO networks. However, both FFS and MCO network adequacy measurement could benefit from benchmarks and comparisons to other states for realized access. Such benchmarks can be generated internally from analysis of HCA data. They could also come from external sources, such as analysis of other state or commercial data. For example, analyses of other states' experiences should be possible, as federal Transformed Medicaid Statistical Information System (T-MSIS) data comes on line in the federal Medicaid and CHIP Business Intelligence Solution (MACBIS) system.

As HCA begins upgrading its provider enrollment processes and system, and adding managed care providers, we recommend that the portal and ProviderOne databases be upgraded to support both MCO and FFS data needs, described in Table III.1. MCO reporting should be restructured so that MCOs report through the portal; HCA can store the resulting data in ProviderOne to support multiple uses.

Table III.1. Data collection approach

Information	Proposed source	Current status
Provider language other than English	Provider reported through portal	Reported by MCOs but not a part of provider network adequacy spreadsheet and analysis. Not reported for FFS
Office hours	Provider reported through portal	Not reported
FFS and MCO currently taking new patients	Provider reported through portal and stored on ProviderOne and available to the public	MCOs report through provider network adequacy system FFS through provider enrollment
Reasonable accommodation for disabilities	Provider reported through portal	Not reported
Triage services	Provider and plan reported through portal	Not reported
Telemedicine	Provider and plan reported through portal	Not reported

Notes: MCO = managed care organizations; FFS = fee-for-service.

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IV. PROMISING STRATEGIES FROM OTHER STATES

To investigate network adequacy monitoring strategies used in other states, we developed a discussion guide and conducted interviews with staff from the agencies responsible for network monitoring in Arizona, California, and Tennessee—states selected for their innovative Medicaid network monitoring practices. (In addition to the three states, we interviewed staff in New York but only about their in process implementation of Quest commercial off the shelf tools for network monitoring.) In this section, we summarize particularly effective monitoring strategies and highlight innovations that may prove appropriate for the state of Washington.

A. Current practices in other states

We asked state officials in Arizona, California, and Tennessee to discuss their approaches to handling network adequacy monitoring that may be relevant to HCA in improving its monitoring and complying with CMS regulations. These topics included states' approaches to time/distance standards, whether mental health and substance abuse providers are included in network adequacy measurement, whether states forecast likely Medicaid enrollment and associated providers needed, whether they monitor provider and beneficiary language needs, how frequently they communicate with MCOs, and whether they incentivize telemedicine and/or triage practices (Table IV.1). We also discussed third-party contracts to support provider network monitoring, and whether states pre-identify provider shortage areas, upcoming changes to network adequacy in response to federal requirements, and penalties and/or rewards associated with network adequacy for MCOs.

Time/distance standards. All three states implement time/distance standards, although the standards vary by location and provider type. Arizona uses Medicare's current standards for primary care physicians, dentists, pharmacies, and some behavioral health providers only in its two most populous counties; it does not hold rural areas to these standards. California uses time/distance standards for primary care and hospitals, and timely access-to-care measures for primary care, mental health, and urgent care. In addition, it implements alternative access standards in certain geographic areas if MCOs request them and offer appropriate documentation. Tennessee currently uses only distance standards. The state has previous experience in using time standards; it found they were less useful than distance standards and dropped the former from its program. However, it will reincorporate its time standards to meet federal requirements.

Table IV.1. Network adequacy monitoring best practices in three states

Practice	Arizona	California	Tennessee
Time/distance standards?	Yes, uses Medicare standards primarily in two most populous counties	Yes, uses state time/distance standards for primary care and hospitals, and timely access for primary care, mental health, and urgent care	Uses only distance standards; dropped time standards because they were not useful, although it is working on reincorporating them
Mental health/substance abuse providers included in network adequacy measurement?	Yes, but no differentiation between mental health and substance abuse providers	No, mental health and substance abuse are carved out of Medi-Cal managed care	Yes, but some of the specialties have high distance requirements (e.g., inpatient psych services)
Forecast likely enrollment and associated providers needed?	No	No, has conducted utilization analysis to see what specialist types are used the most; has not yet adjusted projections to account for Medicaid expansion	No, would work with MCOs if there were a significant coverage expansion
Monitor provider abilities to address beneficiary language needs?	Provider language is a searchable field in the provider directories; MCOs are required to report the percentage of non-English speakers and incorporate those data into their network development plan	Monitors which languages providers speak but has not analyzed against beneficiary needs	MCOs report provider language; state collects beneficiary language information but has not matched beneficiaries with providers on language
Frequency of communication with MCOs about network adequacy?	Quarterly meetings; more frequently if there is an issue	Weekly meetings	Monthly meetings, but other departments communicate daily
Incentives for telemedicine or triage services?	No	No, but planning to add allowable codes for managed care telemedicine	No, but tracks use of telemedicine and knows which providers have the capability

Source: Mathematica interviews with state officials in Arizona, California, and Tennessee.

Mental health/substance abuse providers. States vary in how they handle mental health and substance abuse providers in their measurements. Both Arizona and Tennessee include mental health service providers in their network adequacy monitoring. In Arizona, substance abuse providers are not called out separately from other mental health providers; the latter generally are incorporated into network adequacy measurement. In Tennessee, distance standards are used for mental health/substance abuse providers, although state officials noted that the thresholds for some specialties are quite high because of a limited number of facilities. For example, for psychiatric inpatient services, the travel distance must not exceed 90 miles for 90 percent of members. In California, mental health and substance abuse are carved out of the Medicaid managed care program, so the state does not currently include those providers in its network adequacy measurement.

Projections for future enrollment. None of the states interviewed currently forecast future enrollment and use the results to anticipate the number and types of providers needed in each network. California has done some utilization data analysis to look at the types of specialists used most frequently, but it has not done projections for the future.

Monitor language needs. All three states require all providers to have translation services, but none currently monitors provider abilities to address beneficiary language needs. In Arizona, provider language is included as a searchable field in its provider directories, and MCOs are required to report the percentage of non-English speaking patients they see and incorporate those data into its network development plans. Tennessee collects language information on its members and asks MCOs to report whether providers have capabilities available for languages other than English. Although the state understands where beneficiary language needs are located, it has not undertaken specific analyses to match beneficiary language needs to provider language availability. California currently collects data on provider language availability and eventually would like to analyze and align these data with beneficiary language needs.

Communication with MCOs. The frequency with which states regularly communicate with MCOs about the adequacy of their networks varies, although all three described robust communication practices. Arizona has been a managed care state since it entered the Medicaid program, and state officials described participating in a very open and continual dialogue with all MCOs. They have regularly scheduled quarterly conversations with all MCOs; if network adequacy concerns arise, they can be discussed during those meetings. Arizona also has a designated liaison for each MCO. If the state receives a call from a member reporting access concerns, it immediately reaches out to the MCO. In California, officials host weekly calls with MCOs, during which they can discuss provider network issues. Similarly, Tennessee makes regularly scheduled calls at least monthly; state officials estimated that someone in the organization speaks to MCOs daily, IT staff meet with MCOs at least once a week, and provider services staff meet with them at least monthly.

Telemedicine or triage services. None of the interviewed states currently incentivizes telemedicine or triage services. Tennessee collects information on telemedicine and state officials know which providers have the capability to offer this service, but the state currently does not offer any incentives or produce reports.

Population-based needs. In Arizona, MCOs must address network adequacy for specific populations, including beneficiaries with chronic conditions, those experiencing homelessness or involvement with the justice system, beneficiaries from border communities, children in custody of the state's child welfare agency, children requiring long-term care, and beneficiaries with serious mental illnesses.

B. Innovative approaches

We also asked respondents to describe their state's most innovative approaches to network adequacy monitoring. These activities generally can be categorized into two approaches: (1) administrative enrollment data to improve network adequacy monitoring efforts and (2) changes to policy. Below we describe several innovations that may prove attractive to HCA as it develops plans to improve network monitoring and meet federal regulatory requirements. Table IV.2 summarizes these innovations

1. Administrative approaches

Interviewees from two states described an innovative use for provider registry information. Arizona and Tennessee both use a state-operated health care provider registry. In Arizona, the registry captures characteristics on all providers throughout the state. By contrast, Tennessee registers only providers who belong to a managed care network. To reduce data collection burden on MCOs, Tennessee gives them access to registry data on the providers included in their networks. MCOs do not have to collect and verify data like NPIs but still credential providers.

Officials from California described innovations that relied on provider data collected and submitted by MCOs. In California, MCOs submit a wide variety of information about contracted providers, including location, availability, accessibility, and language capabilities. The state engages an external quality review organization (EQRO) to validate this information on a sample of providers from each MCO.

In addition to innovative uses of provider registries, two states use consumer complaints about providers and networks to monitor network adequacy. New York's planned public-facing provider lookup tool will incorporate a contact desk feature, allowing consumers to report incorrect provider listings. Each report will be automatically forwarded to any MCO contracted with the provider in question and to the state for follow-up. In Arizona, network monitoring efforts currently incorporate member grievance reports. Consumers can file these reports for four categories of grievances: transportation, medical service, contractor service, and access to care. The state requires MCOs to collect grievance reports monthly and submit them to the state for review.

2. Policy approaches

Two states informed us of possible future policy changes that will affect network adequacy monitoring efforts. In Arizona, MCOs will be required to align Medicare and Medicaid providers within their networks. Under an aligned system, MCOs will submit a single claim that automatically crosses over for dually eligible members. Ultimately, this system will allow for faster claims processing and may result in a quicker and more accurate review of encounter data during network adequacy monitoring. California is investigating the possibility of treating telemedicine hubs as providers for time and distance measures used in network adequacy efforts.

V. SUMMARY OF RECOMMENDATIONS

Throughout this final report and in the appendices, we have made recommendations for near-term improvements that build on the current network adequacy data capture and monitoring tools. We have also explored initiatives in other states as well as COTS tools that may be of interest to HCA as longer-term solutions.

A. Near-term recommendations

The current spreadsheet approach, although effective, has reached its limit in adding and analyzing variables, is complicated and, like all spreadsheets, is difficult to audit. Data as reported by MCOs are not consistent in form or structure because they are not submitted in a way that conforms the data through edits. In the near term, we recommend building on existing functionality to add new variables and rebuild the input, data analysis, and reporting functionality in a database design. We also recommend developing a single platform to support provider enrollment and MCO provider network adequacy. HCA efforts can begin to coordinate and design the single solution in the short term. We also recommend implementation and continued refinement of realized access analysis.

The new managed care federal rules require HCA to collect additional information not currently captured or used in the provider network adequacy analysis, including (1) provider hours of operation, (2) individual provider language capabilities, (3) reasonable accommodation capabilities for disabilities, (4) mental health and substance abuse provider integration, (5) MCO and provider telehealth capabilities, and (6) MCO and provider triage capabilities. In the Final Data Collection and Validation Recommendations presented in Appendix A, we identify collection and validation methodologies.

We recommend converting the current processes into a database approach that collects and centralizes all provider information for centralized storage and processing. HCA could enter information from MCOs through database forms and store them in relational structures that facilitate analysis and linking to ProviderOne data. It also could reengineer existing spreadsheet reports as database reports or use the database to populate the spreadsheets. HCA could better integrate the network analysis product it currently uses into the database so that NPI verification, latitude and longitude, and time and distance are updated as database calls and writes without manual processing.

HCA should also consider short-term enhancements to ProviderOne that will improve its ability to monitor network adequacy. Potential ProviderOne enhancements include geocoding and spatial analysis; implementation of Medicare 274 provider specialty self-reporting through the encounter process also will allow more accurate geo-analysis in ProviderOne of beneficiary-to-provider relationships based on a wide variety of beneficiary and service characteristics. We summarize our near-term recommendations in Table V.1.

Table V.1. Recommendations: Strategies for near-term improvement

Item	Near-term strategies	Resources needed to implement
Collection of additional data elements	We recommend collecting information from plans through the existing reporting submissions, including: • Hours of operation • Provider language • Reasonable accommodation • Mental health integration • Triage services • Telehealth	• State employee modification of reporting tool • State employee or contractor updating of data storage approach • State employee communication with providers
Updating of spreadsheet approach	The current spreadsheet approach is at its limit, complicated, and difficult to audit. Data is not consistent in form or structure. Convert to database format in tool of state choosing and integrate data checking and development of standard reports to replicate spreadsheet functions and add additional data elements.	• State employee or contractor data base and programming staff to convert spreadsheet format to tool of state's choosing • Could be implemented in ProviderOne data base environment •
Implement realized access approach	Load, modify and run programs that link data in network adequacy spreadsheet or new database form	• State employee or contract programmer • Environment with resources to process network adequacy and ProviderOne data • Could be implemented in ProviderOne
Integrate MCO network adequacy efforts with FFS managed care efforts	Conduct joint planning efforts	• State employee resources
Database use of Optum tools	Once network adequacy is structured as a database use set up tool to read and write to database Consider use for FFS analysis against ProviderOne provider data	• Optum technical support • State employee or contract employee
Geo-coding of ProviderOne beneficiary and provider address data	Implement geo-coding tool for ProviderOne Select and implement spatial analysis tools	• State technical resources and/or contract resources • Training

Notes: MCO = managed care organizations; FFS = fee-for-service; PNA = provider network adequacy.

B. Longer-term and strategic recommendations

In the longer term, we recommend that HCA create a single provider enrollment and network adequacy monitoring data system within an enterprise vision of health care data that implements realized access. The realized access analysis for the proof of concept used both provider network adequacy and ProviderOne provider data. Provider enrollment is already

planning to incorporate MCO providers and store enrollment information on ProviderOne. Integrating the two systems provides efficiencies and synergies.

In testing our proposed proof of concept, we calculated how many services providers delivered and how many beneficiaries they served in the study period. We identified providers that served high and low numbers of beneficiaries. Access to specialists is fundamental to assessing networks. Additional analysis that defines measures that would represent good service and value were outside the scope of this project. Additional analytic work using diagnosis and risk measures would help HCA define desirable expected values and provide more understanding of network adequacy. HCA should also look to experience in other states and to commercial data and benchmarks as part of this effort. We recommend that HCA pursue this additional analytic work to define benchmarks and measures. We summarize our recommendations in Table V.2.

Table V.2. Recommendations: Strategies for longer-term and strategic improvements

Item	Longer-term strategies	Resources needed to implement
Fully integrate FFS and MCO PNA with data residing in integrated portal and database with data integrated into ProviderOne environment	Create work group Develop strategic plan Advance planning document	• ProviderOne technical resources • State employee and/or contract resources • Contract resources • Federal funding • Communication with providers
Integration of risk groupers into population-based realized access analyses and other enhancements	Obtain and clean beneficiary risk grouper information Integrate data and link to ProviderOne beneficiary data Develop queries to analyze realized access and project provider need based on beneficiary characteristics.	• State employee or contract programmer • Environment with resources to process network adequacy spreadsheet and ProviderOne data • Could be implemented in ProviderOne
Create benchmarks for realized access using federal T-MSIS data or commercial benchmarks or data	Use data from other states to create broader access standards based on risk grouper or population characteristics	• Access to data from other states • Programming resources to develop analyses
Outsourced solution	Monitor development of COTS tools and solutions available in the market and assess compliance with federal regulations Assess ability of outsourced solution to integrate with population-based and realized access approach	• State employee or contract employee • Request for Information development and review

Notes: MCO = managed care organizations; FFS = fee-for-service; PNA = provider network adequacy.

C. Outsourcing

HCA's current spreadsheet-based approach to network adequacy requires updating in structure, content, and reporting. Rather than rebuilding and hosting this approach, a potential strategy for implementation is outsourcing some or all activities to third-party contractors. Under this approach, a contractor could work with HCA to design a comprehensive network adequacy monitoring strategy based on HCA's preferences and the unique needs of the state of Washington. A contractor could also conduct some or all monitoring activities under HCA's supervision and direction, ranging from data collection and validation to producing reports for decision makers. In addition, HCA could retain a contractor to update these processes over time, ensuring their continued relevance. A broader outsourced solution will take time to design and implement, and may be expensive.

Potential outsourcing models include working with a COTS product vendor to develop a Washington-specific solution and/or working with an EQRO:

- **Quest Analytics.** Quest is a tool and solution that markets itself as an end-to-end solution entirely operated by the Quest team. It also offers more limited services to fit within a state's vision for outsourcing certain components.
- **Optum.** HCA currently uses some elements of the GeoNetwork and GeoCoder COTS products. They and other tools in the suite could be integrated more closely into a state- or vendor-built solution at HCA. Tool components not currently in use offer disruption analysis, which models the effect of provider network changes. However, Optum products do not include a database, so they cannot support a totally outsourced solution.
- **External quality review organization.** EQROs offer a less comprehensive outsourced solution for network adequacy monitoring. States use EQROs to perform mandatory review activities, determine MCO compliance with federal regulations (including network adequacy), and serve as a technical resource. Qualis Health, HCA's EQRO, offers IT consulting services and may be able to help HCA improve its processes for network adequacy monitoring (such as assisting with verification and validation of the provider directories during the network adequacy monitoring process).

Although outsourcing may be viable as a long-term strategy for HCA because it brings external expertise into network monitoring and analysis, none of the available vendors has fully integrated the new federal requirements related to language, population-based health forecasting, or documentation of triage services. Cost of a fully outsourced solution may exceed an internally managed approach. In addition, none of the current products has integrated links to administrative data to retrospectively measure realized access to services from the reported networks as proposed and demonstrated by the proof of concept.

For these reasons, we recommend that HCA consider retaining its system in house but improve its database structure so that it can function more effectively with COTS products—such as the Optum GeoNetwork tool—and construct data elements that HCA will find useful in monitoring access both prospectively and retroactively. This approach could integrate FFS and MCO provider enrollment into a common platform and support realized access analysis for both. A single combined approach would yield efficiencies and enable HCA to produce

comparable measures of realized access—such as those we tested in the proof of concept—across both service delivery systems.

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APPENDIX A

DATA COLLECTION AND VALIDATION RECOMMENDATIONS

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Introduction

The Washington Health Care Authority's (HCA) current approach to collecting Managed Care Organization (MCO) provider network information captures many of the data elements required by the new federal regulations and can be adapted to incorporate newly required data elements that it does not currently capture. However, the complexity of the current spreadsheet-based process and its dependence on human processing suggest that HCA might realize efficiencies and enhanced data quality from alternative approaches to collecting, processing, and storing provider network adequacy information, especially in the longer run.

Under the current approach, information collected from MCOs in spreadsheets is loaded into separate spreadsheets at HCA, then processed, enriched, and analyzed. Significant human resources are required for provider identity resolution, provider location coordinates, distance calculation, spreadsheet maintenance, and report creation. The end results of these efforts are spreadsheet-based network adequacy monitoring reports.

HCA may benefit from re-engineering the current processes into a database approach that collects and centralizes all provider information for storage and processing. Information from MCOs could be entered through database forms and stored in relational structures that facilitate analysis and linking to ProviderOne data. Existing spreadsheets could be reengineered as database reports or the database could be used to populate the spreadsheets. The Optum products currently used by HCA could also be integrated into the database so that NPI verification, latitude and longitude, and time and distance are routinely updated as scheduled database calls.

HCA should also consider enhancements to ProviderOne that will improve its ability to monitor network adequacy. Potential ProviderOne enhancements include geocoding and spatial analysis and implementation of Medicare 274 provider specialty self-reporting through the encounter process. Geo-coding will allow more accurate spatial analysis in ProviderOne of beneficiary-to-provider relationships based on a wide variety of beneficiary and service characteristics. California implemented 274 reporting and geocoding in their Medicaid Management Information System as part of their network adequacy monitoring approach.

HCA should also consider implementing a coordinated provider enrollment process for all providers: managed care, fee for service, and American Indian/Alaskan Native (AI/AN). This enrollment process would provide a way to collect all information necessary to comply with the new federal regulations and would benefit MCOs by providing a clearinghouse of provider information that would support MCO credentialing.

Data collection and validation of additional information

New federal Medicaid managed care rules require HCA to collect additional information not currently captured or used in its provider network adequacy analyses, including: (1) provider hours of operations, (2) individual provider language capabilities, (3) reasonable accommodation capabilities for disabilities, (4) mental health and substance abuse provider integration, (5) MCO and provider telehealth capabilities, and (6) MCO and provider triage capabilities. Table A.1 identifies how HCA can collect the new information required by the federal regulations, while Table A.2 presents validation approaches for both currently collected and newly required provider information. Most new requirements can be accommodated within HCA's current

approach, however, we have identified other approaches that HCA could consider for future enhancements to the network adequacy system.

Table A.1. Methods to collect new provider-level details

Requirement	Collection approach	Other approaches
Hours of operation	Require reporting as an addition to current process for MCOs.	Enhance and coordinate MCO provider processes with provider enrollment process for FFS and support MCO credentialing and network reporting. System could capture hours of operations data in a central repository as part of enrollment and update processes.
Language capabilities	This is currently collected by MCOs but not part of the network adequacy spreadsheet process. It should be added to reporting requirements for MCOs at the individual provider level and monitored along with other provider capacity measures.	Enhance provider enrollment to capture language data in a central repository as part of enrollment and update processes.
Accommodation capabilities for disabilities	Require reporting as an addition to current process for MCOs.	Enhance provider enrollment system that captures accommodation data in a central repository as part of enrollment and update processes.
Mental health and substance abuse provider integration	Require reporting from MCOs. Mental health provider identification and service location ambiguity may make geographic analyses difficult.	Improve identification of mental health and substance abuse care delivery sites.
Telehealth capabilities	Require MCOs to report on capabilities at the MCO and individual provider levels as appropriate using current reporting process and in the database once constructed.	
Triage services	Require MCOs to report on capabilities at the MCO and individual provider levels as appropriate using the current reporting process.	

Notes: MCO = managed care organizations; FFS = fee-for-service.

Table A.2. Methods to validate provider-level details

Requirement	Currently reported	Proposed validation methods	Other approaches
General provider and provider specialty and availability to MCOs	Yes	Use realized access analysis in ProviderOne to measure actual provider beneficiary interactions. Use realized access analysis to better target secret shoppers to low-volume or high-volume providers.	Enhance provider enrollment and validation system and database to support managed care and FFS analyses. Implement Medicare 274 process for provider self-reporting of specialty through ProviderOne and integrate this data into centralized database.
Provider availability to beneficiaries	Yes	Use realized access analysis in ProviderOne to measure actual provider beneficiary interactions.	Review of complaints
Provider/beneficiary time and distance	Yes	Optum GeoNetwork currently used to compute distance. Expand use with input of estimated speed to compute time. Link Optum products to database to expedite latitude and longitude and time/distance calculations	Geocode provider and beneficiary data in ProviderOne and use mapping software to compute actual and average distances and times as a replacement to Optum product.
Availability to serve the different state managed care programs	Yes	Use realized access analysis in ProviderOne to measure actual provider beneficiary interactions by program and secret shopper testing.	
Taking new patients	Yes	Use realized access analysis in ProviderOne to measure actual provider beneficiary interactions for new patients and secret shopper testing.	Secret shopper testing and review of complaints
Language capabilities	Yes	Link provider language capability data to ProviderOne beneficiary language data and analyze access of beneficiaries with language needs to providers with and without needed language service.	Once ProviderOne beneficiary and provider data are geocoded, link reported beneficiary and provider language capability data and use mapping software to analyze.
Hours of operation	New	Secret shopper testing.	
Accommodations for physical needs	New	On-site assessment through site visits, external quality reviews, beneficiary complaints and use of secret shopper reviews.	
Telehealth capabilities	New	MCO assessment and secret shopper testing.	
Triage capabilities	New	MCO assessment and secret shopper testing.	

Notes: MCO = managed care organizations; FFS = fee-for-service.

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APPENDIX B

TOOL ANALYSIS

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HCA currently uses a resource-intensive spreadsheet-based approach for provider network adequacy monitoring. An automated approach may allow for improved data management and presentation capabilities. We investigated possible automated solutions by conducting phone interviews with two companies, Optum and Quest Analytics, who offer commercial off-the-shelf (COTS) tools for network adequacy monitoring that are both being used by states. Quest offers a tool as well as outsourced services to provide a comprehensive contracted solution. Quest does not offer a solution which tracks telemedicine or triage services.

Several capabilities are consistent between the tools. Both products:

- use a zip code-based algorithm to represent beneficiary location data rather than actual address , although the Quest tool can use actual enrollment and location data
- do not store beneficiary identification information
- allow customers to design and modify measures and specify benchmarks
- validate NPIs against the Federal Directory and check providers for multiple addresses
- generate distance and travel times for providers by provider type, networks, or geographic areas
- identify gaps in coverage by specialty type, network, and geographic area
- replicate or provide the output required to replicate measures of coverage and network capabilities
- do not project anticipated enrollment, expected utilization of services, or number and types of providers required; however, Optum does predict the effects of a network change
- do not link to encounter data and thus do not allow for monitoring of realized access
- do not assess provider and beneficiary alignment regarding non-English language needs.

Table B.1 presents a complete side-by-side comparison of the relevant capabilities of each software solution. Below, we describe other key characteristics of the Optum and Quest Analytics COTS tools.

Optum GeoAccess

The Optum COTS product consists of five related tools available for licensing separately or collectively under the GeoAccess umbrella: GeoNetworks, GeoCoder, Disruption Analysis, Data Cleaner, and Directory Expert. The first two products, GeoNetworks and GeoCoder, are designed specifically for network adequacy monitoring. Currently, HCA licenses the GeoAccess and GeoNetworks tools to generate latitude and longitude and conduct distance calculations for providers, which are then manually entered into Excel spreadsheets. The Disruption Analysis tool predicts the effect of a change to a network on that network's membership. The final tools, Data Cleaner and Directory Expert, are likely to be of less interest to HCA. All five products work locally as desktop or server applications.

The GeoAccess tools do not store data; rather, they read in information collected and stored by the customer in a database, apply validation and input/output rules to this data, and write back

to the same database. End users may then use the data supplied by these tools to generate charts, figures, or tables for network adequacy monitoring activities.

Pricing of GeoAccess tools depends on two factors: the number of concurrent users, and the number of state licenses (provider and geographic data within a given state) purchased by the customer. Customers can choose to purchase each state license separately or purchase a license for the entire United States at the equivalent cost of six state licenses.

Quest Analytics

Quest Analytics offers a customizable solution based on customer need and preference. The product offerings range from an end-to-end solution operated entirely by Quest to the licensing of one or all components to be maintained and operated by the customer. The tool stores data in the cloud using Microsoft Azure, but customers can choose to operate it locally so long as they build the necessary supporting infrastructure.

Quest's tools allow customers to generate customizable charts and figures in addition to accessing raw data output. Customers can use the tool to create comparisons between plans or geographic areas and examine trends over time. Once the tool is set up and specified to meet customer needs, figures and other output are generated automatically.

According to Quest, pricing for their COTS tool is determined on a case-by-case basis. Factors affecting cost include provider data collection and storage, data validation, compliance monitoring, plan and market comparison, trend analysis, and whether the customer requires assistance with efficiency notifications.

Table B.1. Comparison of commercial off the shelf tools (COTS) for provider network adequacy monitoring

	COTS providers	
COTS details	**Quest Analytics**	**Optum**
	Overview	
Product type	Product varies depending on customer preference, and can range from an end-to-end solution outsourced to Quest Analytics to one or all components licensed and operated by the customer.	The product consists of five related tools, each available to license separately or together under the GeoAccess umbrella. GeoNetworks and GeoCoder are specifically designed for provider network analysis purposes. Disruption Analysis predicts the effect of a change to a network on that network's membership. Data Cleaner modifies data to ensure consistency (such as changing all instances of Bob to Robert or St. to Street). Directory Expert generates provider directories.
	Data	
Data storage	The product can be configured to use local storage or work in the cloud.	The products do not store data; instead, they must write back to a database (such as SQL or Access).
Cloud	The tool works in the cloud using Microsoft Azure.	The products do not work in the cloud.
Local	Customers can choose to license the technology and built local supporting infrastructure.	The products work locally as desktop or server applications, depending on customer preference.
Data sources	The tool utilizes data from a database, such as SQL. Quest can export spreadsheet data to an SQL database for this purpose. Alternatively, Quest can perform data collection activities.	The products can utilize HCA data stored in a database or excel spreadsheet.
Beneficiary location data	The product can use actual beneficiary location information or weighted points within a zip code.	Product uses a weighted zip code model to determine distance. It does not store beneficiary location data.
Actual enrollment and location data	The tool can use actual enrollment and location data for monitoring network adequacy to and from providers.	The products do not use actual enrollment and location data.
Zip code-based algorithm	The tool can use an algorithm that distributes points within a zip-code based on population distributions to monitor network adequacy to and from providers.	The products use zip-coded weighted logic based on the US Postal Service database.
Data validation	Upon receipt, the tool validates data from the plans. NPIs are checked against the Federal Directory, which is updated on a weekly basis. The tool also checks providers for multiple addresses or specialties. Customers can examine the raw data, establish validation rules, and highlight areas for further inquiry. Specialty types are custom-coded for each state.	The products validate data from the plans by checking NPIs against the Federal Directory. The tool also checks providers for multiple addresses. Customers control validation rules.

COTS details	COTS providers	
	Quest Analytics	Optum
End user functionality		
Ability to replicate current capabilities	The tool can replicate current comparisons of provider coverage and network capabilities across MCOs, counties, and provider types given beneficiary populations.	The tool can replicate current comparisons of provider coverage and network capabilities across MCOs, counties, and provider types given beneficiary populations.
Data presentation	Customers can access raw output or customizable charts and figures. Customers can create comparisons between plans or geographic areas.	Customers can access raw output stored in a database.
Trend analyses	The tool can generate charts of measure results over time on a monthly and quarterly basis. Charts can be output to compare plans or geographic areas over time.	Trend analyses would be done in the underlying data base that the product supports.
Customizability	The tool is a framework that is customizable to fit customer's needs, such as building unique data fields, measures, or charts.	The products are a framework that run atop validation and input/output rules specified by the customer.
Monitoring network adequacy standards	Tool can be customized to perform some gap analysis and need projection.	Tool can be customized to perform some gap analysis and need projection.
Gap analysis	Based on rules established by the customer, the tool can identify gaps in coverage for each network, present a market analysis for the network, and provide a database of potential providers to add to the network to close the gap.	The GeoNetworks and GeoCoder products can identify gaps in care by specialty type and geographic area, based on rules established by the customer.
Population characteristics	Although the tool does not forecast provider requirements based on population characteristics, it does identify whether a given geographic area is serviced by an adequate number of providers based on rules determined by the customer.	Although the products do not forecast provider requirements based on population characteristics, it can identify whether a given geographic area is serviced by an adequate number of providers based on rules determined by the customer.
Provider accessibility characteristics	Tool can provide some capability with customization and capture of necessary data.	Tool can provide some capability with customization and capture of necessary data.
Accessible offices/reasonable accommodation	The tool can conduct this analysis if these variables are captured in the data.	The tool can conduct this analysis if these variables are captured in the data.
Non-English language provider capabilities	The tool can conduct this analysis if these variables are captured in the data.	Optum was unable to answer this question as of the time of our interview.

COTS details	COTS providers	
	Quest Analytics	Optum
Distance and travel times	The tool can monitor distance and travel times for providers by type, networks, or geographic areas based on an algorithm that incorporates a) the geographic area traveled to and from, b) whether those areas are urban, suburban, or rural, and c) speed limits associated with each area type. Customers can customize distance and time benchmarks.	The tool can monitor distance and travel times for providers by type, networks, or geographic areas based on an algorithm that calculates time and distance based on an average speed limit and assumes the patient is not traveling a straight path. Customers can customize distance and time benchmarks.
Forecasting	Tool does not provide forecasting	Tool does not provide forecasting
Anticipated enrollment	The tool does not forecast anticipated enrollment.	The tool does not forecast anticipated enrollment.
Expected utilization of services	The tool does not forecast expected utilization of services.	The tool does not forecast expected utilization of services.
Number and types of providers required	The tool can identify gaps, but the determination of number and types of providers required must be made by the customer.	The Disruption Analysis product predicts the volume and associated dollar value of claims affected by a change to a network.
Ability to monitor realized access	The tool does not link to encounter data and does not allow for monitoring of realized access.	The tool does not link to encounter data and does not allow for monitoring of realized access.
Other		
Documentation and transparency	Documentation and transparency varies depending on the service and customer preference, and can include training, designated support teams, and weekly calls. Customers have unlimited access to support staff who are available 7AM-7PM CT. Quest also conducts regular webinars.	Customers are provided documentation on input file formats, write-up formats, and other key topics. Customers are provided with virtual live training over WebEx.
Compatible with FFS monitoring efforts	Although it is not currently being used in this manner, Quest is in talks with Colorado to use their product for FFS monitoring.	Although designed for plan network monitoring it could be used against a FFS database of providers to generate time and distance.
Compatibility with secret shopper efforts	Secret shopper programs can use the tool to identify networks or providers of interest.	The products are not designed to support secret shopper efforts.
Other customers using this product	CMS Medicare Advantage; California, Florida, New Jersey, New York; and commercial health plans.	Optum was unable to reveal this information at the time of our interview. Tennessee informed us that they use these products for network adequacy purposes

Source: Interviews with Quest Analytics (January 4, 2017) and Optum (January 12, 2017).

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