Washington State Health Care Authority, HTA Program
Electrical Neural Stimulation (ENS)
Final Key Questions and Background

Introduction

HTA has selected Electrical Neural Stimulation (ENS) to undergo a health technology assessment where an independent vendor will systematically review the evidence available on the safety, efficacy, and cost-effectiveness. HTA posted the topic and gathered public input about available evidence. Key questions guide the development of the draft evidence report.

Electrical Neural Stimulation (ENS) is an electroanalgesia, used to relieve low back pain, myofascial and arthritic pain, sympathetically mediated pain, bladder incontinence, neurogenic pain, visceral pain and post-surgical pain. A variety of electrical stimulation modalities have emerged including: Transcutaneous electrical nerve stimulation (TENS); Interferential Current Therapy (IFC) to deliver higher currents to larger areas; and Percutaneous Electrical Nerve Stimulation (PENS) which uses electro-accupuncture.

Final Key Questions

When used to treat persons with pain:

1. What's the evidence of efficacy and effectiveness of ENS?
2. What is the evidence about the safety profile for ENS?
3. What is the evidence that the use of ENS units improve clinical outcomes?
4. Is there evidence of differential efficacy or safety issues with use of ENS?
5. What is the evidence of cost implications and cost effectiveness of ENS?

Technology Background

Technology: An ENS unit consists of one or more electrical signal generators, a battery and a set of electrodes. The units are small and programmable, and the generators can deliver trains of stimuli with variable current strengths, pulse rates and pulse widths. A variety of transcutaneous and percutaneous electrical stimulation modalities recently has emerged. Some include the wearing of the units for several days at a time, including: Interferential Current Therapy (IFC) to deliver higher currents to larger areas; and Percutaneous Electrical Nerve Stimulation (PENS) which combines advantages of both electroacupuncture and TENS. The proposed mechanism of action is that it causes nociceptive inhibition to reduce or eliminate pain sensation.

However, questions remain about the unknown clinical effect of ENS over placebo; various ENS modalities (TENS, PENS, IVF), and as compared with other treatments for pain.