Clinical Policy Title: Non-pharmacologic treatments for chronic vertigo

Clinical Policy Number: 10.02.03

Effective Date: July 1, 2015
Initial Review Date: February 18, 2015
Most Recent Review Date: March 6, 2018
Next Review Date: March 2019

Related policies:
None.

ABOUT THIS POLICY: Prestige Health Choice has developed clinical policies to assist with making coverage determinations. Prestige Health Choice’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Prestige Health Choice when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Prestige Health Choice’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Prestige Health Choice’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Prestige Health Choice will update its clinical policies as necessary. Prestige Health Choice’s clinical policies are not guarantees of payment.

Coverage policy

A. Prestige Health Choice considers the use of particle repositioning maneuvers (either the Epley maneuver or the Semont maneuver) for treatment of benign paroxysmal positioning vertigo (BPPV) to be clinically proven and, therefore, medically necessary when the following criteria are met (Wegner 2014, Hilton 2014, Reinink 2014, Hunt 2012):
   - Diagnosis of BPPV has been confirmed by a positive Hallpike test.
   - Member has had symptoms of BPPV for at least one month.
   - Maneuver is performed by a physical therapist or occupational therapist as part of a therapy plan of care.

B. Prestige Health Choice considers the use of vestibular rehabilitation (VR) to be clinically proven and, therefore, medically necessary when the following criteria are met (van den Berge MJ 2016, McDonnell 2015, Porciuncula 2012, Wegner 2014):
   - Diagnosis of vestibular hypofunction has been confirmed by vestibular function tests.
• Symptoms of vestibular hypofunction have existed for at least one month.
• Rehabilitation is performed by a physical therapist or occupational therapist as part of a therapy plan of care.
C. Prestige Health Choice considers the use of either dynamic posturography or tympanic micropressure for treatment of vestibular disorders to be investigational and, therefore, not medically necessary (Ahsan 2015, Syed 2015, Syed 2014).

Limitations:
Coverage determinations are subject to benefit limitations and exclusions as delineated by the state Medicaid authority. The Florida Medicaid website may be accessed at http://ahca.myflorida.com/Medicaid/.

All other uses of particle repositioning maneuvers (the Epley maneuver or the Semont maneuver) or vestibular rehabilitation are not medically necessary, as follows:
• For particle repositioning maneuvers, BPPV is usually in remission within two visits; beyond two visits, there should be justification in the medical record for continued treatment; beyond four visits with no remission there should be consideration of referral back to the attending physician.
• For vestibular rehabilitation:
  - Persons with certain comorbidities may not be appropriate candidates or may need specialized, individually tailored VR protocols. Examples of such comorbidities include cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget’s disease, morbid obesity, ankylosing spondylitis, low back dysfunction and spinal cord injuries.
  - One visit per week for six weeks is considered medically necessary. Six additional visits are considered medically necessary if, upon medical review, there is evidence of clinically significant improvement. If there is no evidence of improvement after 12 visits, additional visits are not considered medically necessary.

Alternative covered services:
• Surgical treatment.
• Medical treatment such as antiepilepsy pharmacologics, antivertigo drugs, beta-receptor blockers, betahistine, ototoxic antibiotics, corticosteroids, calcium-channel blockers, carboanhydrase inhibitors and serotonin reuptake inhibitors.

Background
The vestibular system uses sensory input from the eyes, muscles and joints, and inner ear to maintain balance and stable vision (Vestibular Disorders Association [VDA], 2015). Vestibular disorders can result
from disease or injury that damages the processing areas in the inner ear and brain. The most common causes of vestibular disorders in adults are head trauma and age-related degeneration of the otolithic membrane, but in many cases the cause is unknown (VDA, 2015). In children, the most common disorders known to cause dizziness and vertigo are benign paroxysmal vertigo of childhood, migraine, trauma, vestibular neuritis and otitis media (Gioacchini, 2014, McCaslin, 2011).

Common symptoms of vestibular disorders include imbalance or unsteadiness, dizziness, blurred or bouncing vision, nausea, hearing changes, problems with coordination, and vertigo (VDA, 2015). Symptoms of vestibular dysfunction may be mild, lasting perhaps only seconds or minutes, or they may be severe, resulting in total disability.

There is no consensus on the precise definition of vertigo, but it is generally recognized as a distinct type of dizziness with the sense of rotation, rocking or of the world spinning, even when the person is perfectly still, also known as illusion of motion (Strupp, 2013). In the United States, 1.7 percent of ambulatory medical care visits recorded vertigo or dizziness among the chief complaints (Nguyen-Huynh, 2012).

According to the VDA, the most common vestibular disorder is BPPV (VDA, 2015). Subtypes of BPPV are distinguished by the particular semicircular canal involved (anterior, posterior or horizontal) and whether the detached otoconia are free-floating within the affected canal (canalithiasis) or attached to the cupula (cupulolithiasis). BPPV is typically unilateral, and the most common form is canalithiasis in the posterior semicircular canal.

In most cases, the symptoms diminish or disappear without treatment as the vestibular system heals or the nervous system learns to compensate for the disorder (Strupp, 2013). Watchful waiting may be preferred, but the time to resolution of symptoms varies considerably across diagnoses. Some patients or providers may wish to expedite recovery and avoid further risk of injury. When symptoms persist, treatment can provide a complete cure or only control the symptoms. Treatment for vestibular disorders varies according to the diagnosis and may consist of positional head maneuvers, dietary changes, VR therapy, prescribed drugs or equipment, or, in some cases, surgery.

Searches

Prestige Health Choice searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on January 13, 2018. Search terms were: "transtympanic micropressure treatment" (MeSH) or "physical therapy modalities" (MeSH) or "vertigo/rehabilitation" (MeSH) or
"vertigo/therapy" (MeSH) or “Meniett” or "pressure therapy" or "low-pressure pulse therapy" or “balance retraining” crossed with "vestibular diseases"(MeSH) or "vertigo" (MeSH) or "Dizziness" (MeSH) or "Ménière's disease.”

We included:

- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.

- **Guidelines based on systematic reviews**.

- **Economic Analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

Eight systematic reviews and two evidence-based guidelines examined the evidence for VR, particle repositioning maneuvers and transtympanic micropressure therapy. No systematic reviews examined dynamic posturography as a treatment modality. There was marked heterogeneity across studies with respect to minimum symptom duration prior to treatment, diagnosis, treatment administration and outcome measures. Most studies were carried out in specialty settings.

There is sufficient evidence to support the use of VR for treatment of chronic vertigo. There is moderate- to strong-quality evidence that VR is a safe, effective treatment for persons with unilateral peripheral vestibular dysfunction based on a number of high-quality randomized controlled trials (RCTs). There is moderate-quality evidence that VR resolves symptoms and improves functioning in the medium term. Minimum symptom duration prior to treatment ranged from at least one week to at least 12 months. The optimal treatment protocol could not be determined from the evidence base.

For persons with BPPV, the evidence for improved outcomes with VR is less conclusive. VR may be more appropriate as adjunctive therapy rather than a primary treatment modality for BPPV. However, subsets of patients with preexisting balance deficit, central nervous system disorders or risk for falls may derive more benefit from VR than the patient with isolated BPPV (Bhattacharyya, 2008). Persons with certain comorbidities may not be appropriate candidates for VR or may need specialized, individually tailored VR protocols. Examples of such comorbidities include cervical stenosis, Down syndrome, severe rheumatoid arthritis, cervical radiculopathies, Paget’s disease, morbid obesity, ankylosing spondylitis, low back dysfunction and spinal cord injuries.

There is sufficient evidence to support particle repositioning maneuvers as a first-line treatment for the specific diagnosis of BPPV. Although BPPV is likely to remit spontaneously in a few months, evidence-based guidelines recommend particle repositioning maneuvers as initial therapy to expedite recovery
There is moderate to strong evidence from multiple RCTs that the Epley maneuver is a safe and effective therapy for posterior canal BPPV. There is less convincing evidence supporting the use of the Semont maneuver in persons with posterior canal BPPV, and guidelines provide weaker recommendations as a “possibly effective” treatment. Guidelines made no recommendations for or against other particle repositioning maneuvers for treatment of either horizontal or anterior canal BPPV due to very limited evidence from uncontrolled studies (Bhattacharyya, 2008; Fife, 2008).

Evidence of improved health benefit with the addition of mastoid vibration or oscillation or post-treatment postural restrictions (e.g., cervical collar, sleeping upright) is inconclusive. There is no consensus for recommending or refuting post-maneuver postural restrictions (Bhattacharyya, 2008; Fife, 2008).

In most cases, one treatment sufficiently resolves symptoms and improves functioning, but, in approximately one-third of cases, symptoms do not fully clear. However, there is no conclusive evidence that supports improved outcomes with the use of multiple sessions of particle repositioning maneuvers for persistent symptoms. The repeated application of particle repositioning is likely to be determined by the severity of the symptoms, clinician availability and the clinician's historical success with the maneuvers (Bhattacharyya, 2008).

There is insufficient evidence to support the use of transtympanic micropressure therapy for treatment of vertigo associated with Ménière’s disease. There is low-quality evidence that suggests transtympanic micropressure therapy using the Meniett® Low-Pressure Pulse Generator (Medtronic Inc.; Minneapolis, MN) is safe when used for persons with Ménière’s disease who are refractory to medical therapy, but the evidence of any health benefit is inconclusive.

There is insufficient evidence to support the use of computerized dynamic posturography (CDP) for treatment of vestibular disorders. One small, low-quality study randomized 24 patients with chronic unilateral peripheral vestibular disease (UPVD) to either CDP or optokinetic stimulation (Rossi-Izquierdo, 2007). The CDP group showed greater benefits in visual and vestibular input and limits of stability, but these results need to be confirmed in larger prospective studies.

Policy updates:

A systematic review (van de Berge, 2016) of patients (n=572) with longstanding tinnitus and/or vertigo found microvascular decompression of the cochleovestibular nerve was modestly effective in patients who underwent treatment. A low rate of complication (11 percent) was noted. The quality of the evidence presented, however, was low and the authors urged further study of this modality.

As of March 16, 2016, a systematic review (Syed, 2015) of four randomized controlled trials including 123 patients compared the efficacy of the Meniett device versus a placebo device in patients with Ménière’s disease as defined by American Academy of Otolaryngologists-Head and Neck Surgeons (AAO-
HNS) criterion. There was a significant overall 61 percent reduction in the frequency of vertigo in both groups (mean no vertigo days per month of eight to three). The reduction was not significantly different between the two groups in any study or on meta-analysis (mean difference in vertigo-free days between Meniett and placebo device of 0.77 days over a one-month period [95 percent CI – 0.82, 1.83] P = 0.45). There was no substantive data to support a greater reduction in the severity of the vertigo or any other outcome with the Meniett device compared with the placebo device.

During the past twelve months there has been no further information published regarding non-pharmacologic treatments for chronic vertigo.

**Summary of clinical evidence:**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
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</table>
| van den Berge MJ (2016) | Key points:  
- A systematic review evaluated the therapeutic effect of relieving pressure on the cochleovestibular nerve as treatment for tinnitus and/or vertigo  
- Thirty-five studies (572 patients) were included. The level of evidence provided by these studies was low.  
- In 28% of patients with tinnitus and 32% of patients with vertigo, complete relief following microvascular decompression was reported.  
- Patients with both tinnitus and vertigo had complete relief in 62% of cases.  
- Patients with both tinnitus and vertigo had a higher chance of success (OR 3.8, 95% CI 1.45-10.10) than patients with tinnitus alone.  
- A complication rate of 11% was recorded. |
| McDonnell (2015) | Key points:  
- Systematic review of 39 studies (n = 2,441 adults with UPVD).  
- Overall quality: moderate to strong. Unclear risk of bias due to inadequate reporting of randomization process; underpowered; low risk of bias in other parameters.  
- Follow-up range: zero to 12 months.  
- VR is safe, effective based on frequency of dizziness vs. control or no intervention (odds ratio [OR] 2.67, 95% confidence interval [CI] 1.85 to 3.86).  
- VR resolves symptoms and improves functioning in the medium term (standardized mean difference [SMD] -0.83, 95% CI -1.02 to -0.64), including post-surgical patients and patients with vestibular neuritis, acute UPVD and Ménière’s disease.  
- BPPV: Physical maneuvers were superior to movement-based VR in dizziness cure rate in the short term (OR 0.19, 95% CI 0.07 to 0.49), but a combination of the two is effective for longer-term functional recovery.  
- No reported adverse effects.  
- Insufficient evidence to discriminate between differing forms of VR or dosages. |
| Wegner (2014) | Key points:  
- Systematic review of five studies comparing VR to Epley maneuver.  
- Overall quality: moderate to strong.  
- Epley maneuver is more effective than VR at one-week follow-up re: patient-reported symptom relief and conversion of the Dix-Hallpike maneuver from positive to negative (risk differences range from 10% [95% CI, 30 – 47] to 55% [95% CI, 35 – 71]).  
- Epley maneuver vs. VR at one-month follow-up appears equally effective for UPVD. |
| Porciuncula (2012) | Key points:  
- Systematic review of five studies comparing VR to Epley maneuver.  
- Overall quality: moderate to strong.  
- Epley maneuver is more effective than VR at one-week follow-up re: patient-reported symptom relief and conversion of the Dix-Hallpike maneuver from positive to negative (risk differences range from 10% [95% CI, 30 – 47] to 55% [95% CI, 35 – 71]).  
- Epley maneuver vs. VR at one-month follow-up appears equally effective for UPVD. |
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<tbody>
<tr>
<td>Wegner (2014)</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>BPPV</td>
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<td>Hilton (2014)</td>
<td><strong>Key points:</strong></td>
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<td>Cochrane review BPPV</td>
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<tr>
<td>Reinink (2014)</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Posterior BPPV</td>
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<td>Hunt 2012</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Cochrane review p-BPPV</td>
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<td>Ahsan 2015</td>
<td><strong>Key points:</strong></td>
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<tr>
<td>Ménière's disease</td>
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Bilateral vestibular hypofunction (BVH)  
- Systematic review of five cohort studies and nine case-control studies.  
- Overall quality: low to moderate.  
- Exercise-based VR is effective in improving impairment (gaze and postural stability).  
- Insufficient evidence supporting benefit of VR or sensory prosthetics.

- Systematic review of five cohort studies and nine case-control studies.  
- Overall quality: low to moderate.  
- Exercise-based VR is effective in improving impairment (gaze and postural stability).  
- Insufficient evidence supporting benefit of VR or sensory prosthetics.

Wegner (2014)  
BPPV  
**Key points:**  
- See VR section above.

Hilton (2014)  
Cochrane review  
BPPV  
**Key points:**  
- Systematic review of 11 RCTs (n = 745 adults) comparing Epley maneuver to control or other repositioning maneuvers.  
- Overall quality: strong. Low risk of overall bias, but relatively short follow-up.  
- No serious adverse effects. Some patients were unable to tolerate the maneuvers because of cervical spine problems.  
- Epley maneuver is a safe, effective treatment for posterior canal BPPV. High recurrence rate of BPPV after treatment (36%).  
- Outcomes for Epley maneuver are comparable to treatment with Semont (two RCTs, n = 117) or Gans maneuver (one RCT, n = 58), but superior to Brandt-Daroff exercises (one RCT, n = 81).

Reinink (2014)  
Posterior BPPV  
**Key points:**  
- Systematic review of 14 studies of repeated application of Epley maneuver on patient-reported symptom relief and resolution of nystagmus.  
- Overall quality: low. Uncontrolled studies with high risk of bias.  
- Inconclusive evidence of beneficial effect of multiple sessions of Epley maneuver in posterior BPPV patients who are not fully cleared of symptoms after the first session. Controlled studies needed.

Hunt 2012  
Cochrane review  
p-BPPV  
**Key points:**  
- Systematic review of 11 trials (n = 855 adults) of modifications of Epley maneuver vs. standard Epley maneuver alone.  
- Modifications: mastoid vibration/oscillation, VR exercises, additional steps in Epley maneuver and post-treatment postural restrictions.  
- Overall quality: low. Inadequate or unclear allocation concealment and blinding.  
- Post-treatment postural restrictions vs. Epley maneuver alone (nine trials):  
  - No difference in post-treatment vertigo intensity or subjective assessment of improvement.  
  - Small but statistically significant improvement in frequency of Dix-Hallpike conversion (RR 1.13, 95% CI 1.05 to 1.22, P = 0.002) with addition of postural restrictions.  
  - No serious adverse effects reported, but minor complications such as neck stiffness, horizontal BPPV, dizziness and disequilibrium in some patients reported in three studies.  
  - Insufficient evidence of benefit of adding mastoid oscillation during Epley maneuver, steps to Epley maneuver or VR exercises to Epley maneuver.

Ahsan 2015  
Ménière's disease  
**Key points:**  
- Systematic review and meta-analysis of four RCTs, 11 case series, two non-randomized controlled cohort. 12 studies used for meta-analysis.  
- Overall quality: low. Short follow-up (average = 5 months), low number of patients in the treatment and control groups, mostly retrospective or case series.  
- Meniett treatment significantly improved pure tone average (P = 0.0085; eight studies) and reduced frequency of vertigo (P = < .0001; six studies).  
- Unable to combine AAO-HNS functional scores due to heterogeneity.
<table>
<thead>
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<th>Citation</th>
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<tr>
<td><strong>Syed 2015</strong></td>
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Ménière's disease | • The Meniett device appears safe when used for patients who are refractory to medical therapy, but insufficient evidence of effectiveness. |
| | **Key points:** |
| | • Systematic review of four randomized controlled trials inclusive of 123 patients compared the efficacy of the Meniett device versus a placebo device in patients with Ménière’s disease as defined by the AAO-HNS criterion. |
| | • There was a significant overall 61% reduction in the frequency of vertigo in both groups (mean no vertigo days per month of eight to three). |
| | • The reduction was not significantly different between the two groups in any study or on meta-analysis (mean difference in vertigo-free days between Meniett and placebo device of 0.77 days over a one-month period [95% CI -0.82, 1.83] P = 0.45). |
| | • There was no substantive data to support a greater reduction in the severity of the vertigo or any other outcome with the Meniett device compared with the placebo device. |
| **Syed 2014** | 
Ménière's disease | **Key points:** |
| | • Systematic review and meta-analysis of four RCTs (n = 123 experimental group, 114 controls) of Meniett device vs. placebo. |
| | • Overall quality: low. Follow-up ranged two weeks to four months. |
| | • Significant overall 61% reduction in the frequency of vertigo in both groups, but not significantly different between on meta-analysis (mean difference in vertigo-free days between Meniett® and placebo device of 0.77 days over a one-month period [95% CI -0.82, 1.83; p = 0.45]). |
| | • No substantive data to support a greater reduction in the severity of the vertigo or any other outcome with the Meniett device vs. placebo. |
| | • Insufficient evidence of effectiveness. |

**References**

**Professional society guidelines/other:**


**Peer-reviewed references:**


**CMS National Coverage Determination (NCDs):**

No NCDs identified as of the writing of this policy.

**Local coverage determinations (LCDs):**

No LCDs identified as of the writing of this policy.

**Commonly submitted codes**

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

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<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comment</th>
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<tbody>
<tr>
<td>95992</td>
<td>Canalith repositioning procedure(s) (eg, Epley maneuver, Semont maneuver), per day</td>
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<tr>
<td>97530</td>
<td>Therapeutic activities, direct (one-on-one) patient contact (use of dynamic activities to improve functional performance), each 15 minutes</td>
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<tr>
<td>97535</td>
<td>Self-care/home management training (eg, activities of daily living (ADL) and compensatory training, meal preparation, safety procedures, and instructions in use of assistive technology devices/adaptive equipment) direct one-on-one contact, each 15 minutes</td>
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<tr>
<td>97537</td>
<td>Community/work reintegration training (eg, shopping, transportation, money management, avocational activities and/or work environment/ modification analysis, work task analysis, use of assistive technology device/adaptive equipment), direct one-on-one contact, each 15 minutes</td>
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<tr>
<td>97750</td>
<td>Physical performance test or measurement (eg, musculoskeletal, functional capacity), with written report, each 15 minutes</td>
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<thead>
<tr>
<th>ICD-10 Code</th>
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<tr>
<td>H81.10</td>
<td>Benign paroxysmal vertigo, unspecified ear</td>
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<td>H81.12</td>
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<td>H81.13</td>
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<td>H81.21</td>
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<td>H81.22</td>
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<td>H81.23</td>
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<th>HCPCS Level II Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>S9476</td>
<td>Vestibular rehabilitation program, nonphysician provider, per diem</td>
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