



MASSACHUSETTS

Blue Cross Blue Shield of Massachusetts is an Independent Licensee of the Blue Cross and Blue Shield Association

## Medical Policy

### Vestibular Function Testing

#### Table of Contents

- [Policy: Commercial](#)
- [Policy: Medicare](#)
- [Authorization Information](#)
- [Coding Information](#)
- [Description](#)
- [Policy History](#)
- [Information Pertaining to All Policies](#)
- [References](#)

#### Policy Number: 024

BCBSA Reference Number: 2.01.104 (For Plan internal use only)

NCD/LCD: N/A

#### Related Policies

Dynamic Posturography, #[263](#)

#### Policy

##### **Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members**

Vestibular function testing using an electronystagmography and videonystagmography testing batteries, caloric testing, or rotational chair testing may be considered **MEDICALLY NECESSARY** when the following conditions have been met:

- The individual has symptoms of a vestibular disorder (eg, dizziness, vertigo, imbalance); **AND**
- A clinical evaluation, including maneuvers such as the Dix-Hallpike test if indicated, has failed to identify the cause of the symptoms.

Vestibular evoked myogenic potential (VEMP) testing for the diagnostic evaluation or to determine the appropriate medical or surgical treatment may be considered **MEDICALLY NECESSARY** when the following conditions have been met:

- The patient has symptoms that may be suggestive of optic capsule dehiscence (semicircular canal or other dehiscences (e.g., noise/sound induced dizziness [Tullio phenomenon], fullness/pressure in the ear, autophony)

Vestibular function testing for the assessment of typical benign paroxysmal positional vertigo that can be diagnosed clinically is **INVESTIGATIONAL**.

Repeat vestibular function testing when treatment resolves symptoms is **INVESTIGATIONAL**.

Vestibular function testing in all other situations is **INVESTIGATIONAL**.

All other laboratory-based vestibular function tests not described above are considered **INVESTIGATIONAL**.

## Prior Authorization Information

### Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

### Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

	Outpatient
<b>Commercial Managed Care (HMO and POS)</b>	Prior authorization is <b>not required</b> .
<b>Commercial PPO and Indemnity</b>	Prior authorization is <b>not required</b> .
<b>Medicare HMO Blue<sup>SM</sup></b>	Prior authorization is <b>not required</b> .
<b>Medicare PPO Blue<sup>SM</sup></b>	Prior authorization is <b>not required</b> .

## CPT Codes / HCPCS Codes / ICD Codes

*Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.*

*Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.*

*The following codes are included below for informational purposes only; this is not an all-inclusive list.*

**The above medical necessity criteria MUST be met for the following codes to be covered for Commercial Members: Managed Care (HMO and POS), PPO, Indemnity, Medicare HMO Blue and Medicare PPO Blue:**

### CPT Codes

CPT codes:	Code Description
92517	Vestibular evoked myogenic potential (VEMP) testing, with interpretation and report; cervical (cVEMP)
92518	Vestibular evoked myogenic potential (VEMP) testing, with interpretation and report; ocular (oVEMP)
92519	Vestibular evoked myogenic potential (VEMP) testing, with interpretation and report; cervical (cVEMP) and ocular (oVEMP)
92537	Caloric vestibular test with recording, bilateral; bithermal (ie, one warm and one cool irrigation in each ear for a total of four irrigations)
92538	Caloric vestibular test with recording, bilateral; monothermal (ie, one irrigation in each ear for a total of two irrigations)
92540	Basic vestibular evaluation, includes spontaneous nystagmus test with eccentric gaze fixation nystagmus, with recording, positional nystagmus test, minimum of 4 positions, with recording, optokinetic nystagmus test, bidirectional foveal and peripheral stimulation, with recording, and oscillating tracking test, with recording
92541	Spontaneous nystagmus test, including gaze and fixation nystagmus, with recording
92542	Positional nystagmus test, minimum of 4 positions, with recording
92544	Optokinetic nystagmus test, bidirectional, foveal or peripheral stimulation, with recording
92545	Oscillating tracking test, with recording
92546	Sinusoidal vertical axis rotational testing
92547	Use of vertical electrodes (List separately in addition to code for primary procedure)

## Description

### Vertigo

The vestibular system is an important component in balance control. It includes 5 end organs, 3 semicircular canals sensitive to head rotations, and 2 otolith organs (sacculae, utricle) that sense gravity and straight-line (forward, backward, left, right, downward or upward) accelerations. Vertigo is the primary symptom of vestibular dysfunction. It can be experienced as illusory movements such as spinning, swaying, or tilting. Vertigo may be associated with a feeling of being pushed or pulled to the ground, blurred vision, nausea and vomiting, or postural and gait instability. Vertigo may arise from damage or dysfunction of the vestibular labyrinth, vestibular nerve, or central vestibular structures in the brainstem.

Vertigo may be caused by loose particles (otoconia) from the otolith organs that pass into 1 of the semicircular canals, most frequently the posterior canal. Specific head movements cause the particle to stimulate the canal, causing brief benign paroxysmal positional vertigo.

### Diagnosis

Brief benign paroxysmal positional vertigo can usually be diagnosed clinically based on a history of positional vertigo, response to the Dix-Hallpike maneuver or lateral roll tests, and resolution of symptoms with canal repositioning maneuvers.

If vertigo cannot be attributed to benign paroxysmal positional vertigo based on history, symptoms, or response to the standard maneuvers, a number of laboratory-based tests can be used to determine whether the vertigo is due to loss of vestibular function.<sup>1,2</sup> These tests are based on the vestibulo-ocular reflex, which is an involuntary beating movement of the eyes (nystagmus) in response to vestibular stimulation. Nystagmus induced by these tests can help to distinguish between central and peripheral etiologies, in addition to determining whether the deficit is unilateral or bilateral. The typical tests include the electronystagmography (ENG) or videonystagmography (VNG) test batteries, caloric testing, and rotational chair testing.

### Electronystagmography/Videonystagmography Test Batteries

The ENG/VNG test batteries include oculomotor evaluation and positional testing. Electronystagmography uses electrodes at the canthus of the eyes to detect nystagmus while VNG uses infrared video monitoring with goggles to measure nystagmus.

### Caloric Testing

Caloric testing evaluates unilateral vestibular function. In the caloric test, warm or cold water or warm or cold air is introduced into each of the external ear canals. In some descriptions, caloric testing is conducted as part of ENG/VNG test batteries.

### Rotational Chair Testing

Rotational chair testing evaluates bilateral vestibular function. Rotational chair devices include a lightproof booth, computer-driven chair with a head restraint that rotates around a vertical axis, ENG recording, an infrared camera, and a 2-way communication system. Typically, the chair is rotated in 4 different patterns, constant acceleration followed by deceleration, rotating followed by a rapid stop, rotating at progressively increasing velocities, and alternating directions.

Passive rotational testing without a rotational chair may be performed when the rotational chair is not available. For the head impulse test, the patient is instructed to keep his or her eyes on a target. The examiner then turns the head rapidly by about 15°. With passive whole-body testing, the examiner rotates the whole body to the rhythm of a metronome.

### Vestibular Evoked Myogenic Potential Testing

Vestibular evoked myogenic potential (VEMP) tests are newer techniques that use loud sound (eg, click, tone burst) or bone vibration (eg, tendon hammer tap to the forehead or mastoid) to assess otolith function.<sup>3</sup> Both the saccule and utricle are sensitive to sound as well as vibration and movement.

Cervical VEMPs are measured by surface electrodes on the ipsilateral sternocleidomastoid muscle in the neck and are thought to originate primarily in the saccule. Abnormality in any part of the auditory cervical VEMP pathway (saccule, inferior vestibular nerve, vestibular nucleus, medial vestibulospinal tract, the accessory nucleus, the eleventh nerve, sternocleidomastoid) can affect the response.

Ocular VEMPs detect subtle activity of an extraocular muscle using surface electrodes under the contralateral eye during an upward gaze and are thought to be due primarily to stimulation of the utricle. The vestibulo-ocular reflex stimulated by sound or vibration is very small, but synchronous bursts of activity of the extraocular muscles can be detected by electromyography. Lesions that affect the ocular VEMP may occur in the utricle, superior vestibular nerve, vestibular nucleus, and the crossed vestibulo-ocular reflex pathways.

### **Dynamic Posturography**

Dynamic posturography may also be used to evaluate balance. Dynamic posturography is discussed in policy #[263](#).

### **Treatment**

The central vestibular system is able to compensate for loss of peripheral vestibular function. Thus, the primary therapy for peripheral vestibular dysfunction is exercise-based and includes exercises to promote gaze stability, habituate symptoms, and improve balance and gait.<sup>4</sup> Medications such as vestibular suppressants or antiemetics may be used in the acute stage but are not recommended for chronic use. For patients who have recurrent symptoms uncontrolled by other methods, a surgical or ablative approach may be used. The objective of ablation is to stabilize the deficit to allow central compensation.

## **Summary**

### **Description**

Dizziness, vertigo, and balance impairments can arise from a loss of vestibular function. A number of established laboratory-based tests are used to evaluate whether the symptoms are due to dysfunction of the semicircular canals. These tests are based on the vestibulo-ocular reflex, which is an involuntary movement of the eyes (nystagmus) in response to vestibular stimulation. Established laboratory tests include electronystagmography and videonystagmography test batteries, caloric stimulation, and rotational chair testing. Vestibular evoked myogenic potentials (VEMPs), triggered by sound and vibration, are also being evaluated for the diagnosis of otolith dysfunction.

### **Summary of Evidence**

#### **Undiagnosed Benign Paroxysmal Positional Vertigo**

For individuals who have a suspected vestibular disorder not clinically diagnosed as benign paroxysmal positional vertigo (BPPV) who receive electronystagmography/videonystagmography test batteries, caloric testing, or rotational chair testing, the evidence includes technology assessments of a large body of literature. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. Based on review of controlled studies, caloric testing was given a level A recommendation that this test is predictive of loss of vestibular function. Based on a prospective study assessing a narrow spectrum of patients with the suspected vestibular dysfunction and a well-designed retrospective study, which included a criterion standard test, rotational chair testing was also given a level A recommendation. These tests are both considered criterion standard tests of vestibular function. Electronystagmography/videonystagmography test batteries, which may include caloric testing, are also established methods of assessing loss of vestibular function. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have a suspected vestibular disorder not clinically diagnosed as benign paroxysmal positional vertigo (BPPV) who receive vestibular evoked myogenic potentials (VEMP) testing, the evidence includes mainly association studies. Relevant outcomes are test accuracy, symptoms, functional outcomes,

and quality of life. There is a large and rapidly growing literature on VEMP tests for the assessment of otolith function, although most studies have assessed how the cervical VEMP and ocular VEMP change with various disease states. Studies on diagnostic accuracy and clinical utility of this technique for evaluating otolith organs and central pathways are needed in the appropriate populations. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

### Diagnosed Benign Paroxysmal Positional Vertigo

For individuals who have clinically diagnosed benign paroxysmal positional vertigo(BPPV) with typical presentation who receive laboratory-based vestibular function testing, the evidence includes technology assessments and practice guidelines. Relevant outcomes are test accuracy, symptoms, functional outcomes, and quality of life. Benign paroxysmal positional vertigo with a typical presentation can be diagnosed clinically based on history, the Dix-Hallpike maneuver, lateral roll test, and canalith repositioning procedures; thus, laboratory-based vestibular function testing does not add diagnostic information in such routine cases. The evidence is sufficient to determine that the technology is unlikely to improve the net health outcome.

### Policy History

Date	Action
7/2024	Clarified coding information
4/2024	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
4/2023	Annual policy review. Minor editorial refinements to policy statements; intent unchanged.
10/2022	New medically necessary indications described for VEMP testing. References and summary section updated. Coding clarified. Effective 10/1/22.
4/2021	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
1/2021	Clarified coding information
4/2020	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
4/2019	Annual policy review. Description, summary, and references updated. Policy statements unchanged.
6/2018	Annual policy review. Background clarified.
3/2018	Annual review. New references added. Background and summary clarified.
8/2017	New medical policy describing medically necessary and investigational indications. Effective 8/1/2017.

### Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

### References

1. Fife TD, Tusa RJ, Furman JM, et al. Assessment: vestibular testing techniques in adults and children: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. Nov 28 2000; 55(10): 1431-41. PMID 11094095
2. Schubert MC. Vestibular function tests. In: Herdman SJ, Clendaniel RA, eds. *Vestibular Rehabilitation. Vol Contemporary Perspectives in Rehabilitation*: F.A. Davis; 2014:178-194.
3. Halmagyi GM, Curthoys IS. Otolith function tests. In: Herdman SJ, Clendaniel RA, eds. *Vestibular Rehabilitation. Vol Contemporary Perspectives in Rehabilitation*: F.A. Davis; 2014:195-225.
4. Hall CD, Herdman SJ, Whitney SL, et al. *Vestibular Rehabilitation for Peripheral Vestibular Hypofunction: An Evidence-Based Clinical Practice Guideline: FROM THE AMERICAN PHYSICAL*

- THErapy ASSOCIATION NEUROLOGY SECTION. *J Neurol Phys Ther.* Apr 2016; 40(2): 124-55. PMID 26913496
5. US Food and Drug Administration. 510(k) Premarket Notification. US Department of Health and Human Services website. <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMN/pmnm.cfm>. Accessed December 13, 2023.
  6. Gofrit SG, Mayler Y, Eliashar R, et al. The Association Between Vestibular Physical Examination, Vertigo Questionnaires, and the Electronystagmography in Patients With Vestibular Symptoms. *Ann Otol Rhinol Laryngol.* Apr 2017; 126(4): 315-321. PMID 28290231
  7. Weber KP, Rosengren SM. Clinical utility of ocular vestibular-evoked myogenic potentials (oVEMPs). *Curr Neurol Neurosci Rep.* May 2015; 15(5): 22. PMID 25773001
  8. Welgampola MS, Colebatch JG. Vestibulocollic reflexes: normal values and the effect of age. *Clin Neurophysiol.* Nov 2001; 112(11): 1971-9. PMID 11682335
  9. Ertl M, Boegle R, Kirsch V, et al. On the impact of examiners on latencies and amplitudes in cervical and ocular vestibular-evoked myogenic potentials evaluated over a large sample (N = 1,038). *Eur Arch Otorhinolaryngol.* Feb 2016; 273(2): 317-23. PMID 25628238
  10. Verrecchia L, Brantberg K, Tawfique Z, et al. Diagnostic Accuracy of Ocular Vestibular Evoked Myogenic Potentials for Superior Canal Dehiscence Syndrome in a Large Cohort of Dizzy Patients. *Ear Hear.* 2019; 40(2): 287-294. PMID 29889159
  11. Hunter JB, Patel NS, O'Connell BP, et al. Cervical and Ocular VEMP Testing in Diagnosing Superior Semicircular Canal Dehiscence. *Otolaryngol Head Neck Surg.* May 2017; 156(5): 917-923. PMID 28168887
  12. Halker RB, Barrs DM, Wellik KE, et al. Establishing a diagnosis of benign paroxysmal positional vertigo through the dix-hallpike and side-lying maneuvers: a critically appraised topic. *Neurologist.* May 2008; 14(3): 201-4. PMID 18469678
  13. Bhattacharyya N, Baugh RF, Orvidas L, et al. Clinical practice guideline: benign paroxysmal positional vertigo. *Otolaryngol Head Neck Surg.* Nov 2008; 139(5 Suppl 4): S47-81. PMID 18973840
  14. Fife TD, Colebatch JG, Kerber KA, et al. Practice guideline: Cervical and ocular vestibular evoked myogenic potential testing: Report of the Guideline Development, Dissemination, and Implementation Subcommittee of the American Academy of Neurology. *Neurology.* Nov 28 2017; 89(22): 2288-2296. PMID 29093067
  15. American Academy of Audiology. Position statement on the audiologist's role in the diagnosis & treatment of vestibular disorders. n.d.; <https://www.audiology.org/publications-resources/document-library/position-statement-audiologists-role-diagnosis-treatment>. Accessed December 13, 2023.
  16. American Academy of Audiology. Scope of practice. *Audiol Today.* 2004;15(3):44-45.
  17. Bhattacharyya N, Gubbels SP, Schwartz SR, et al. Clinical Practice Guideline: Benign Paroxysmal Positional Vertigo (Update). *Otolaryngol Head Neck Surg.* Mar 2017; 156(3\_suppl): S1-S47. PMID 28248609
  18. Papathanasiou ES, Murofushi T, Akin FW, et al. International guidelines for the clinical application of cervical vestibular evoked myogenic potentials: an expert consensus report. *Clin Neurophysiol.* Apr 2014; 125(4): 658-666. PMID 24513390