

Medical Policy: Visual Electrophysiology Testing (Commercial)



POLICY NUMBER	EFFECTIVE DATE	APPROVED BY
MG.MM.ME.68Cav2	02/01/2020	MPC (Medical Policy Committee)

IMPORTANT NOTE ABOUT THIS MEDICAL POLICY:

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Definitions

Visual Evoked Response (VER) and Visual Evoked Potential (VEP)	The VER and VEP tests evaluate the visual nervous system pathways from the eyes to the occipital cortex of the brain. By measuring the function of the entire visual pathway, it helps to separate eye disease from central nervous system defects. VER/VEP involves stimulation of the retina and optic nerve with a shifting checkerboard pattern or flash method. This external visual stimulus causes measurable electrical activity in neurons within the visual pathways. The VER is recorded by electroencephalography electrodes located over the occiput producing a characteristic waveform. Abnormalities may be seen in a variety of
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	<p>pathologic processes involving the optic nerve and its radiations. Pattern-shift VER is a highly sensitive means of documenting lesions in the visual system.</p>
<p>Full Field Electroretinogram (ERG)</p>	<p>The full field electroretinogram (ERG) is used to detect loss of retinal function or distinguish between retinal and optic nerve lesions. ERG measures the electrical activity generated by neural and non-neuronal cells in the retina in response to a light stimulus. ERGs are usually obtained using electrodes embedded in a corneal contact lens, or a thin wire inside the lower eyelid, which measure a summation of retinal electrical activity at the corneal surface. The International Society for Clinical Electrophysiology of Vision (ISCEV) introduced minimum standards for the ERG in 1989. The ERG helps to distinguish retinal degeneration and dystrophies. Multi-focal electroretinography (mfERG) is a higher resolution form of ERG, enabling assessment of ERG activity in small areas of the retina. Pattern ERG (PERG) to assess retinal ganglion cell (RGC) function in glaucoma is being investigated.</p>

Guidelines

A. Visual Evoked Potentials or Responses (VEPs/VERs)

Testing is considered medically necessary when **any** of the following criteria are met:

1. To diagnosis and monitor multiple sclerosis
2. To diagnose or evaluate deficits or damage to the visual system of infants unresponsive/nonverbal patients
3. To localize the cause of a visual field defect, not explained by lesions seen on CT or MRI, metabolic disorders, or infectious diseases
4. Evaluate diseases of the optic nerve; i.e.:
 - a. Optic neuritis
 - b. Ischemic optic neuropathy
 - c. Toxic amblyopias
 - d. Nutritional amblyopias
 - e. Neoplasms compressing the anterior visual pathways
 - f. Optic nerve injury or atrophy
 - g. Malingering/functional vision loss (to rule out)
 - h. Pseudopapilledema of the optic disc
 - i. Hemorrhage in the optic nerve sheath
5. Monitor the visual system during optic nerve (or related) surgery (monitoring of short-latency evoked potential studies)

B. Electroretinography (ERG)

Testing is considered medically necessary for **either** (1 or 2):

1. To diagnose loss of retinal function or distinguish between retinal lesions and optic nerve lesions; **any**:

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- a. Toxic retinopathies, including those caused by intraocular metallic foreign bodies and Vigabatrin
 - b. Diabetic retinopathy
 - c. Ischemic retinopathies including central retinal vein occlusion (CRVO), branch vein occlusion (BVO), and sickle cell retinopathy
 - d. Autoimmune retinopathies such as Cancer Associated Retinopathy (CAR), Melanoma Associated Retinopathy (MAR), and Acute Zonal Occult Outer Retinopathy (AZOOR)
 - e. Retinal detachment
 - f. Assessment of retinal function after trauma, especially in vitreous hemorrhage, dense cataracts, and other conditions where the fundus cannot be visualized photoreceptors; absent b-wave indicates abnormality in the bipolar cell region.
 - g. Retinitis pigmentosa and related hereditary degenerations
 - h. Retinitis punctata albescens
 - i. Leber's congenital amaurosis
 - j. Choroideremia
 - k. Gyrate atrophy of the retina and choroid
 - l. Goldman-Favre syndrome
 - m. Congenital stationary night blindness
 - n. X-linked juvenile retinoschisis
 - o. Achromatopsia
 - p. Cone dystrophy
 - q. Disorders mimicking retinitis pigmentosa
 - r. Usher Syndrome
2. To detect chloroquine (Aralen) and hydroxychloroquine (Plaquenil) toxicity (mfERG)

VEP/ERG in Glaucoma

A 2011 report by the AAO on "Assessment of Visual Function in Glaucoma" noted that while VEP and ERG, as objective measures of visual function, provided testing free of patient input, issues prevent their adoption for glaucoma management (1). It concluded that advances in technology have yet to produce definitive guidance on the diagnosis of glaucoma or its progression over time and that further research on an objective measure of visual function is needed.

Since then several studies (2-5) have investigated the use of VEP and ERG technology to differentiate between normal healthy eyes and eyes with early to advanced visual field loss resulting from glaucoma. The authors indicated that VEP and ERG may allow earlier diagnosis of glaucoma. However, NGS has determined that without larger studies, AAO's 2011 conclusion, that these technologies have yet to produce definitive guidance on the diagnosis of glaucoma or its progression over time, remains. This was also the conclusion of a 2013 study which prospectively monitored progressive changes of RGC function in early glaucoma using PERG (6). The authors concluded that further follow-up is required to determine whether PERG losses are predictors of future visual field loss.

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Neither of the 2015 AAO Preferred Practice Guidelines, "Primary Open-Angle Glaucoma Suspect" or "Primary Open-Angle Glaucoma," mention VEP or ERG as diagnostic tools (7,8). Also, the UpToDate review on "Open-angle glaucoma: Epidemiology, clinical presentation, and diagnosis," likewise omits reference to either test (9). There remain no verified guidelines for normal vs abnormal that would be easily applicable to an individual patient. ConnectiCare, Inc. therefore considers the use of VEP or ERG for either glaucoma diagnosis or management investigational.

Limitation/Exclusion

Testing shall be performed by physicians who have evidence of knowledge, training, and expertise to perform and interpret these tests. This training and expertise must have been acquired within the framework of an accredited school, residency or fellowship program.

The use of VEP or ERG for glaucoma diagnosis or management is considered investigational.

Applicable Coding

To access the codes, please download the policy **to your computer, and click on the paperclip icon within the policy**



References

National Government Services. Local Coverage Determination (LCD): Visual Electrophysiology Testing. January 2019. <https://www.cms.gov/medicare-coverage-database/details/lcd-details.aspx?LCDId=36831&ver=30&DocType=All&bc=AgIAAABAAAA&>. Accessed October 15, 2019.

Specialty matched clinical peer review.

Revision history

DATE	REVISION
10/2019	<ul style="list-style-type: none">Connecticare has adopted the clinical criteria of its parent corporation, EmblemHealthReformatted and reorganized policy, transferred content to new template