# LCD - Visual Electrophysiology Testing (L37015)

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# Contractor Information

| CONTRACTOR NAME | CONTRACT TYPE | CONTRACT NUMBER | JURISDICTION | STATES |
|---|---|---|---|---|
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 05101 - MAC A | J - 05 | Iowa |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 05102 - MAC B | J - 05 | Iowa |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 05201 - MAC A | J - 05 | Kansas |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 05202 - MAC B | J - 05 | Kansas |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 05301 - MAC A | J - 05 | Missouri - Entire State |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 05302 - MAC B | J - 05 | Missouri - Entire State |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 05401 - MAC A | J - 05 | Nebraska |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 05402 - MAC B | J - 05 | Nebraska |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 05901 - MAC A | J - 05 | Alabama<br>Alaska<br>Arizona<br>Arkansas<br>California - Entire State<br>Colorado<br>Connecticut<br>Delaware<br>Florida<br>Georgia<br>Hawaii<br>Idaho<br>Illinois<br>Indiana<br>Iowa<br>Kansas<br>Kentucky<br>Louisiana |

| CONTRACTOR NAME | CONTRACT TYPE | CONTRACT NUMBER | JURISDICTION | STATES |
|---|---|---|---|---|
| | | | | Maine<br>Maryland<br>Massachusetts<br>Michigan<br>Mississippi<br>Missouri - Entire State<br>Montana<br>Nebraska<br>Nevada<br>New Hampshire<br>New Jersey<br>New Mexico<br>North Carolina<br>North Dakota<br>Ohio<br>Oklahoma<br>Oregon<br>Pennsylvania<br>Rhode Island<br>South Carolina<br>South Dakota<br>Tennessee<br>Texas<br>Utah<br>Vermont<br>Virginia<br>Washington<br>West Virginia<br>Wisconsin<br>Wyoming |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 08101 - MAC A | J - 08 | Indiana |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 08102 - MAC B | J - 08 | Indiana |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part A | 08201 - MAC A | J - 08 | Michigan |
| Wisconsin Physicians Service Insurance Corporation | MAC - Part B | 08202 - MAC B | J - 08 | Michigan |

# LCD Information

# Document Information

**LCD ID**
L37015

**LCD Title**
Visual Electrophysiology Testing

**Proposed LCD in Comment Period**
N/A

**Source Proposed LCD**
DL37015

**Original Effective Date**
For services performed on or after 07/17/2017

**Revision Effective Date**
For services performed on or after 10/01/2023

**Revision Ending Date**
N/A

**Retirement Date**
N/A

**Notice Period Start Date**
06/01/2017

**Notice Period End Date**
07/16/2017



## Issue

### Issue Description

Review completed with no change in coverage.

## CMS National Coverage Policy

Title XVIII of the Social Security Act Section 1833(e) prohibits Medicare payment for any claim which lacks the necessary information to process the claim.

Title XVIII of the Social Security Act Section 1862(a)(1)(A) excludes expenses incurred for items or services which are not reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.

Code of Federal Regulations 42 CFR Section 410.32 indicates that diagnostic tests may only be ordered by the treating physician or other treating practitioner acting within the scope of his or her license and Medicare requirements who furnishes a consultation or treats a beneficiary for a specific medical problem and who uses the results in the management of the beneficiary's specific medical problem. Tests not ordered by the physician (or another qualified non-physician provider) who is treating the beneficiary are not reasonable and necessary (see Sec. 411.15(k)(1) of this chapter).

## Coverage Guidance

**Coverage Indications, Limitations, and/or Medical Necessity**

**VEP/VER** - The visual evoked response (VER) and visual evoked potential (VEP) 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 pathologic processes involving the optic nerve and its radiations. Pattern-shift VER is a highly sensitive means of documenting lesions in the visual system.

**ERG** - 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.

**Indications of Coverage**
**Visual Evoked Potentials or Responses (VEPs/VERs)**

1. Confirm diagnosis of multiple sclerosis when clinical criteria are inconclusive
2. Evaluate diseases of the optic nerve, such as:
    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)
3. Monitor the visual system during optic nerve (or related) surgery (monitoring of short-latency evoked potential studies)

**Electroretinography (ERG)**

1. To diagnose loss of retinal function or distinguish between retinal lesions and optic nerve lesions:
    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. Goldmann-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) per the American Academy of Ophthalmology (AAO) guidelines (10).

**VEP/ERG in Glaucoma (Non-Covered)**

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. 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 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, without larger studies, WPS GHA and the AAO's 2011 report both agree that these technologies have yet to produce definitive guidance on the diagnosis of glaucoma or its progression over time. This was also the conclusion of a 2013 study which prospectively monitored progressive changes of RGC function in early glaucoma using PERG. The authors concluded that further follow-up is required to determine whether PERG losses are predictors of future visual field loss.

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. Also, the UpToDate® review on "Open-angle glaucoma: Epidemiology, clinical presentation, and diagnosis," likewise omits reference to either test.

There remain no verified guidelines for normal vs abnormal that would be easily applicable to an individual patient. WPS GHA, therefore, considers the use of VEP or ERG for either glaucoma diagnosis or management investigational.

**Limitations**

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.

**Summary of Evidence**

N/A

**Analysis of Evidence (Rationale for Determination)**

N/A

# General Information

**Associated Information**

**Documentation Requirements**
The patient's medical record must contain documentation that fully supports the medical necessity for services included within this LCD. (See "Coverage Indications, Limitations, and/or Medical Necessity") This documentation includes, but is not limited to, relevant medical history, physical examination, and results of pertinent diagnostic tests or procedures.

Documentation supporting the medical necessity should be legible, maintained in the patient's medical record, and must be made available to the MAC upon request.

**Sources of Information**

N/A

**Bibliography**

American Academy of Ophthalmology (AAO). (2015). Glaucoma Panel. Primary open-angle glaucoma suspect. Preferred practice pattern. San Francisco, CA: AAO.

Banitt MR, Ventura LM, Feuer WJ, et al. Progressive loss of retinal ganglion cell function precedes structural loss by several years in glaucoma suspects. *Invest Ophthalmol Vis Sci*. 2013;54(3):2346-52.

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Jampel HD, Singh K, Lin SC, et al. Assessment of visual function in glaucoma: A report by the American Academy of Ophthalmology. *Ophthalmology*. 2011; 118(5):986-1002.

Marmor MF, Kellner U, Lai TY, Melles RB, Mieler WF. American academy of ophthalmology statement: Recommendations on screening for chloroquine and hydroxycholoquine retinopathy. *Ophthalmology*. 2016; 123(6):1386-1394.

Pillai C, Ritch R, Derr P, et al. Sensitivity and specificity of short-duration transient visual evoked potentials (SD-tVEP) in discriminating normal from glaucomatous eyes. *Invest Ophthalmol Vis Sci*. 2013; 54(4):2847-2852.

Ventura LM, Golubev I, Feuer WJ, Porciatti V. Pattern electroretinogram progression in glaucoma suspects. *J Glaucoma*. 2013; 22:219–225.

# Revision History Information

| REVISION HISTORY DATE | REVISION HISTORY NUMBER | REVISION HISTORY EXPLANATION | REASONS FOR CHANGE |
|---|---|---|---|
| 10/01/2023 | R9 | Posted 09/28/2023: Biannual Review completed 08/14/2023 with no change in coverage. | • Other ((review)) |
| 05/26/2022 | R8 | Posted 05/26/2022: Review completed 04/12/2022. Minor typographical errors corrected throughout the LCD. Moved references listed under **Sources of Information** to the **Bibliography** section and made corrections to reflect AMA formatting guidelines. | • Other (review) |
| 11/01/2019 | R7 | 05/28/2020 Review performed 05/01/2020 | • Other ((review)) |
| 11/01/2019 | R6 | Change Request 10901 Local Coverage Determinations (LCDs): it will no longer be appropriate to include Current Procedure Terminology (CPT)/Health Care Procedure Coding System (HCPCS) codes or International Classification of Diseases Tenth Revision-Clinical Modification (ICD-10-CM) codes in the LCDs. All CPT/HCPCS, ICD-10 codes, and Billing and Coding Guidelines have been removed from this LCD and placed in the Billing and Coding Article related to this LCD. Consistent with Change Request 10901, if any language from IOMs and/or regulations was present in the LCD, it has been removed and the applicable manual/regulation has been referenced. | • Revisions Due To Code Removal |
| 01/01/2019 | R5 | 01/01/2019 CPT/HCPCS code updates: deleted code 92275 and added codes 92273 and 92274. | • Revisions Due To CPT/HCPCS Code Changes |
| 06/01/2018 | R4 | 06/01/2018 Annual review done 05/02/2018. Typographical errors corrected. No change in coverage. | • Other (Annual Review) |

| REVISION HISTORY DATE | REVISION HISTORY NUMBER | REVISION HISTORY EXPLANATION | REASONS FOR CHANGE |
|---|---|---|---|
| 01/01/2018 | R3 | 01/01/2018 CPT/HCPCS code updates: description change to Group 1 code 95930. | • Revisions Due To CPT/HCPCS Code Changes |
| 10/01/2017 | R2 | 10/01/2017 ICD-10 code updates: Description changes to Group 1: S04.031A, S04.031D, S04.031S, S04.032A, S04.032D, S04.032S, S04.041A, S04.041D, S04.041S, S04.042A, S04.042D, and S04.042S; deleted codes from Group 1 H54.0, H54.11, H54.12, H54.2, H54.41, H54.42, H54.51, and H54.52; and added codes to Group 1 H54.0X33, H54.0X34, H54.0X35, H54.0X43, H54.0X44, H54.0X45, H54.0X53, H54.0X54, H54.0X55, H54.1131, H54.1132, H54.1141, H54.1142, H54.1151, H54.1152, H54.1213, H54.1214, H54.1215, H54.1223, H54.1224, H54.1225, H54.2X11, H54.2X12, H54.2X21, H54.2X22, H54.413A, H54.414A, H54.415A, H54.42A3, H54.42A4, H54.42A5, H54.511A, H54.512A, H54.52A1, and H54.52A2. | • Revisions Due To ICD-10-CM Code Changes |
| 08/01/2017 | R1 | 08/01/2017 Added the following diagnosis codes to Group 1 for 95930 visual evoked potential (VEP) testing: H47.521, H47.522, H53.011, H53.012, H53.013, H53.021, H53.022, H53.023, H53.031, H53.032, and H53.033. At this time 21st Century Cures Act will apply to new and revised LCDs that restrict coverage which requires comment and notice. This revision is not a restriction to the coverage determination; and, therefore not all the fields included on the LCD are applicable as noted in this policy. | • Revisions Due To ICD-10-CM Code Changes |

# Associated Documents

**Attachments**

N/A

**Related Local Coverage Documents**

**Articles**

A57599 - Billing and Coding: Visual Electrophysiology Testing

A55533 - Response to Comments: Visual Electrophysiology Testing (L37015)

**Related National Coverage Documents**

N/A

**Public Versions**

| UPDATED ON | EFFECTIVE DATES | STATUS |
|---|---|---|
| 09/19/2023 | 10/01/2023 - N/A | Currently in Effect (This Version) |

| UPDATED ON | EFFECTIVE DATES | STATUS |
|---|---|---|
| 05/17/2022 | 05/26/2022 - 09/30/2023 | Superseded |
| Some older versions have been archived. Please visit the MCD Archive Site to retrieve them. | | |

# Keywords

N/A