01-92000-28

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Reviewed: 03/26/20

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Subject: Electroretinography

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

DESCRIPTION:

The retina is the light-sensitive layer of tissue at the back of the inner eye. It is composed of rod and cone cells in the photoreceptive layer of tissue. Images come through the eye's lens and are focused on the retina. The retina then converts these images to electric signals and sends them via the optic nerve to the brain. The macula is the yellow oval spot at the center of the retina (back of the eye) that contains blood vessels and nerve fibers. It is primarily for central and color vision. The remaining retina is primarily for peripheral and night vision.

The global or full field electroretinogram (ERG) is a test used to assess the status of the retina in eye diseases. The ERG is conducted by stimulating the eye with a bright light source such as a flash produced by LEDs or a strobe lamp. The flash of light elicits a biphasic waveform recordable at the cornea. The two components that are most often measured are the a- and b-waves. A-waves are the initial corneal-negative deflection, derived from the cones and rods of the outer photoreceptor layers. B-waves are corneal-positive deflection; derived from the inner retina, predominantly Muller and ON-bipolar cells.

A limitation of the traditional global or full-field ERG is that the recording is a massed potential from the whole retina. Unless 20% or more of the retina is affected with a diseased state the ERGs are usually normal. Multi-focal electroretinography (mfERG) is an advanced form of ERG in that it produces images with higher resolution than ERG. The mathematical sequences (called binary m-sequences) were adapted to create a program that can extract hundreds of focal ERGs from a single electrical signal. This system allows assessment of ERG activity in small areas of retina.

Pattern electroretinography (PERG) is a retinal bio-potential evoked by a temporally modulated patterned stimulus (e.g., checkerboard or grating) of constant mean luminance. The standard PERG is recorded to

abrupt contrast reversal of a black and white checkerboard pattern with central fixation. Since the PERG is a local response from the area covered by the retinal stimulus image, it is proposed for use as a sensitive indicator of dysfunction within the macular region; for use in individuals with abnormal pattern VEPs to establish if a central retinal disorder is present; and to detect and monitor dysfunction of retinal ganglion cells caused by conditions such as glaucoma, optic neuropathies and primary ganglion cell diseases.

POSITION STATEMENT:

Full field electroretinography (ERG) **meets the definition of medical necessity** for the following:

- To detect loss of retinal function, **OR**
- To distinguish between retinal lesions and optic nerve lesions

Multi-focal Electroretinography (mfERG) **meets the definition of medical necessity:**

- To detect chloroquine (Aralen) and hydroxychloroquine (Plaquenil) toxicity

Electroretinography (ERG) and multi-focal electroretinography (mfERG) are considered **experimental or investigational** for all other conditions. The data in published medical literature are inadequate to permit scientific conclusions on long-term and net health outcomes for conditions not listed above.

Pattern electroretinography (PERG) is considered **experimental or investigational**. There is a lack of clinical scientific evidence published in peer-reviewed literature to permit conclusions on net health outcomes.

BILLING/CODING INFORMATION:

CPT Coding

0509T	Electroretinography (ERG) with interpretation and report, pattern (PERG) (**Investigational**)
92273	Electroretinography (ERG), with interpretation and report; full field (ie, ffERG, flash ERG, Ganzfeld ERG)
92274	Electroretinography (ERG), with interpretation and report; multifocal (mfERG)

ICD-10 Diagnosis Codes That Support Medical Necessity (92273)

A18.53	Tuberculous chorioretinitis
E08.311-E08.39	Diabetes mellitus due to underlying condition with ophthalmic complications
E09.311-E09.39	Drug or chemical induced diabetes mellitus with ophthalmic complications
E10.311-E10.39	Type 1 diabetes mellitus with ophthalmic complications
E11.311-E11.39	Type 2 diabetes mellitus with ophthalmic complications
E13.311-E13.39	Other specified diabetes mellitus with ophthalmic complications
G45.3	Amaurosis fugax
H30.001-H30.149	Chorioretinal inflammation
H30.20-H30.23	Posterior cyclitis
H30.811-H30.93	Harada's disease; other chorioretinal inflammations
H31.001-H31.429	Chorioretinal scars
H33.001-H33.119	Retinal detachment
H33.191-H33.8	Retinoschisis and retinal cysts; other retinal attachments

H34.00-H34.9	Retinal artery occlusion; retinal vein occlusions
H35.00-H35.89	Retinopathy; retinal micro-aneurysms; retinal vasculitis
H36	Retinal disorders in diseases classified elsewhere
H40.1110 – H40.1194	Primary open-angle glaucoma, staged
H46.00-H46.9	Optic papillitis
H47.011-H47.399	Ischemic optic neuropathy; optic nerve hemorrhage; other disorders of optic disc

ICD-10 Diagnosis Codes That Support Medical Necessity (92274)

T37.2X1A	Poisoning by antimalarials and drugs acting on other blood protozoa, accidental (unintentional), initial encounter
T37.2X2A	Poisoning by antimalarials and drugs acting on other blood protozoa, intentional self-harm, initial encounter
T37.2X3A	Poisoning by antimalarials and drugs acting on other blood protozoa, assault, initial encounter
T37.2X4A	Poisoning by antimalarials and drugs acting on other blood protozoa, undetermined, initial encounter

REIMBURSEMENT INFORMATION:

Refer to section entitled **POSITION STATEMENT**.

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage products: The following Local Coverage Determination (LCD) was reviewed on the last guideline review date: ELECTRORETINOGRAPHY (ERG) (L37398), located at cms.gov.

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Scanning Computerized Ophthalmic Diagnostic Imaging, 01-92000-17

OTHER:

None applicable.

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COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy & Coverage Committee on 03/26/20.

GUIDELINE UPDATE INFORMATION:

05/15/15	New Medical Coverage Guideline.
11/01/15	Revision: ICD-9 Codes deleted.
04/15/16	Scheduled review. Maintained position statement. Updated references.
10/01/16	ICD-10 coding update: added codes H40.1110 – H40.1194.
05/15/17	Scheduled review. Position statement maintained. Guideline reformatted. Updated references.
04/15/18	Scheduled review. Position statement maintained. Revised Medicare Advantage program exception. Updated references.
01/01/19	Annual CPT/HCPCS coding update: added 92273 and 92274, deleted 92275. Revised ICD10 coding.
04/15/19	Scheduled review. Revised description, Added coverage statement (E/I) for pattern electroretinography (PERG), added code 0509T. Updated references.
04/15/20	Scheduled review. Maintained position statement and updated references.