



A Public Entity

INLAND EMPIRE HEALTH PLAN

IEHP UM Subcommittee Approved Authorization Guidelines
Electroencephalogram (EEG)

I. Coverage Policy:

IEHP considers the routine, ambulatory and video EEG as medically necessary if used for specific purposes only and if used in a stepwise fashion. Please see the Coverage Criteria section for circumstances considered medically necessary.

II. Coverage Criteria:

A. Routine EEG

1. IEHP considers the use of an EEG medically necessary under any of the following circumstances:

- a. In the diagnosis of Epilepsy, or Epilepsy not responding to treatment.
- b. In the diagnosis of coma, metabolic encephalopathy, transient neurological events, and/or brain death.
- c. Peri-operatively, such as to monitor the depth of anesthesia, or as an indirect indicator of cerebral perfusion during neurosurgery.
- d. For the study of sleep and sleep-related disorders when done as part of a polysomnogram.
- e. To differentiate seizure types (i.e. absence versus complex partial seizures).
- f. If initial EEG is normal, the addition of sleep deprivation, photic stimulation, and/or hyperventilation may be recommended in an effort to capture abnormal brain activity.

B. Ambulatory EEG

1. IEHP considers the use of an ambulatory EEG medically necessary under any of the following circumstances:

- a. For patients in whom an epilepsy diagnosis is suspected but not defined by history, physical, or a routine/standard EEG. (Medicare, 1984).
- b. To classify seizure type after a routine-EEG is non-diagnostic, or epilepsy not responding to treatment (Anthem 2017, Apollo 2017).
- c. For the differential diagnosis of syncope and transient ischemic attacks not diagnosed by conventional studies. (Medicare, 1984).
- d. To document seizures precipitated by environmental cyclic events that cannot be reproduced in a hospital or laboratory setting (Anthem, 2017).
- e. To quantify number of seizures in patients with frequent seizures (Anthem, 2017).

C. Inpatient Video EEG:

1. Please see IEHP's UM Subcommittee Guidelines, Video Electroencephalogram, on this topic.

III. Coverage Limitations and Exclusions:

- A. IEHP does not consider routine EEGs performed under the following circumstances to be medically necessary:
1. For the routine evaluation of headaches. (American Academy of Neurology, 2013).
 2. For evaluation of simple febrile seizures. (American Academy of Nursing, 2017)
 3. To rule out seizures unless there is a differential diagnosis.
 4. For repeat EEG testing in patients with stable epilepsy.
 5. For repeat EEG if there are breakthrough seizures without a change in seizure characteristics. In this case, the patient's medication may need to be adjusted, and an EEG will not change management because there is not a new differential diagnosis.
- B. Bundling EEG studies:
Multiple EEG types (i.e. routine/standard, outpatient ambulatory, inpatient video) should not be ordered simultaneously. EEGs should be ordered in a stepwise fashion. A routine/standard EEG should be ordered first. If this test is negative a prolonged ambulatory EEG should be considered. Only if this test is unremarkable should an inpatient video EEG be done in order to obtain further information about a patient's condition.

IV. Background:

An Electroencephalogram (EEG) is the recording of electrical activity along the scalp immediately adjacent to the superficial area of the cerebral cortex. An EEG measures voltage fluctuations resulting from ionic current flows within the neurons of the brain.

A routine/standard EEG should be performed by a qualified Electroencephalographer or Electroneurodiagnostic Technologist. The 10-20 system of electrode placement is recommended for providing a consistent and replicable method of recording EEG with 21 electrodes placed at a relative distances between the cranial landmarks over the head (Acharya et al, 2016). The baseline record should contain at least 20 minutes of technically satisfactory recording to assess baseline waking EEG activity (Sinha et al, 2016).

Ambulatory EEGs allow for prolonged electroencephalographic recording in an outpatient setting. It has a higher diagnostic yield than a routine EEG because it is able to capture infrequent events in a patient's natural environment with exposure to typical triggers. Ambulatory EEG is statistically more likely to capture seizures than sleep-deprived recordings on standard EEG. (Lawley, 2015) In one study, ambulatory EEG outcomes resulted in change in management in approximately 70% of patients (Dash 2012). The test is generally more convenient and better tolerated for patients than video EEG.

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References:

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2. Aetna 2017. “Ambulatory Electroencephalography.” Last reviewed 8/4/2017.
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3. American Academy of Nursing, Choosing Wisely Campaign, “Don’t routinely order an EEG on neurologically healthy children who have a simple febrile seizure.” March 21, 2017.
<http://www.choosingwisely.org/clinician-lists/nursing-eeeg-after-simple-febrile-seizure-in-healthy-children/>
4. American Academy of Neurology, Choosing Wisely Campaign, “Don’t perform electroencephalography (EEG) for headaches.” Feb 21, 2013.
<http://www.choosingwisely.org/clinician-lists/american-academy-neurology-electroencephalography-for-headaches/>
5. Anthem 2017. “Ambulatory and Inpatient Video Electroencephalography.” Last reviewed 8/3/2017.
https://www.anthem.com/medicalpolicies/guidelines/gl_pw_c160712.htm
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9. Medicare National Coverage Determination (NCD) #160.22 “Ambulatory EEG Monitoring.” Publication number: 100-3, Effective Date: 6/12/1984.
<https://www.cms.gov/medicare-coverage-database/>

10. Sinha SR, Sullivan L, Sabau D, San-Juan D, Dombrowski KE. American Clinical Neurophysiology Society Guide 1: Minimum Technical Requirements for Performing Clinical Electroencephalography. J Clin Neurophysiol 2016;33: 303-307.
https://www.acns.org/UserFiles/file/Guideline1-MinimumTechnicalRequirementsforPerofrmingClinicalEEG_v1.pdf

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