

Clinical Policy: Ambulatory Electroencephalography

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Description

Ambulatory electroencephalogram (EEG) testing in the outpatient setting (*e.g.*, at home) is a diagnostic test used to evaluate an individual in whom a seizure disorder is suspected but not conclusively confirmed by the person's medical history, physical examination, and a previous routine or standard (awake and asleep) EEG.

Policy/Criteria

- I. It is the policy of PA Health & Wellness that ambulatory EEG is **medically necessary** following an inconclusive or nondiagnostic standard (awake and asleep) EEG for any of the following indications:
 - A. To investigate episodic events where epilepsy is suspected but the history, examination, and routine EEG do not resolve the diagnostic uncertainties;
 - B. To confirm epilepsy in those individuals experiencing suspected nonepileptic events or for classification of seizure type;
 - C. To differentiate between neurological and cardiac related episodes;
 - D. To adjust antiepileptic medication levels;
 - E. To localize seizure focus for enhanced patient management;
 - F. To identify and medicate absence seizures;
 - G. To differentiate between epileptic and sleep disorder-related episodes; and/or
 - H. To evaluate seizures precipitated by naturally occurring cyclic events or environmental stimuli that are not reproducible in the hospital or clinic setting.
- II. It is the policy of PA Health & Wellness that ambulatory EEG is considered **not medically necessary** for studies of unattended, non-cooperative patients.

Ambulatory EEG (CPT code 95950 or 95953) should always be preceded by an awake and drowsy/sleep EEG (CPT code 95816, 95819, 95822 or 95827).

Background

In most instances, a standard EEG performed at a clinic or outpatient epilepsy facility can identify brain activity specific to seizures; however, when routine EEG is inconclusive and the clinical history strongly suggests seizure activity, an ambulatory EEG may be indicated. An ambulatory EEG may increase the chance of detecting an epileptiform abnormality in these individuals and significantly impact clinical management. An estimated 12% to 25% of individuals who previously had a normal or non-diagnostic routine EEG have epileptiform activity on ambulatory EEG.³

Clinical events known as psychogenic nonepileptic spells (PNES) (previously referred to as pseudoseizures) are nonepileptic seizures where the person perceives altered movement, emotion, sensation, or an experience similar to those involved with epilepsy. These events are without an EEG-documented ictal association. PNES occur in as many as 20% of persons evaluated at

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inpatient epilepsy monitoring centers and in 5% to 20% of outpatient populations. Both PNES and epileptic seizures are concurrent in an estimated 10% to 60% of individuals with epilepsy.³

Ambulatory EEG recordings can be utilized in the evaluation and differential diagnosis of other conditions, including cardiac arrhythmias, sleep disorders, syncope, and transient ischemic attacks, if these episodes are not diagnosed by conventional studies. It may also allow an estimate of seizure frequency, which may at times help to evaluate the effectiveness of a drug and determine its appropriate dosage.

Ambulatory EEG testing provides a continuous recording of the brain's electrical activity that can range from several hours to several days (typically 48 hours to 72 hours). In the outpatient setting (physician office, clinic), a set of electrodes with leads is secured to the person's scalp and a digital recording unit is attached to the waist or a shoulder harness. Currently, portable recordings of up to 32 channels can record computer-assisted spike and seizure detection rates over several days. Event detection computer software is designed to increase the chance of recording an ictal event during a seizure or interictal epileptiform discharges occurring between seizures, during the person's routine daily activities and sleep. The person being tested and observers (family members, caregiver) have the opportunity to "tag" portions of the recording during clinical events using a push button device to signal when an observable event occurs.

The gold standard for evaluating the large amount of data collected by a computer-assisted system is visual analysis at the end of the testing period by a highly trained individual.³ Digital analysis of an EEG can be used to diagnose neurological conditions when routine EEG outcomes and neurological imaging are inconclusive to confirm suspicious but nondiagnostic symptoms. Digital analysis of an EEG requires the analysis of an EEG using quantitative analytical techniques such as data selection, quantitative software processing, and dipole source analysis.

Coding Implications

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CPT® Codes	Description
95950	Monitoring for identification and lateralization of cerebral seizure focus, electroencephalographic (eg, 8 channel EEG) recording and interpretation, each 24 hours
95953	Monitoring for localization of cerebral seizure focus by computerized portable 16 or more channel EEG, electroencephalographic (EEG) recording and interpretation, each 24 hours, unattended

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ICD-10-CM Diagnosis Codes that Support Coverage Criteria

ICD-10-CM Code	Description
F44.5	Conversion disorder with seizures or convulsions
G40.001- G40.B19	Epilepsy and recurrent seizures
R25.0 – R25.8	Abnormal involuntary movements
R56.1	Post-traumatic seizures
R56.9	Unspecified convulsions

Reviews, Revisions, and Approvals	Date	Approval Date
Policy developed	06/18	
References reviewed and updated	08/18	

References

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3. Krumholz A, Wiebe S, Gronseth GS, et al. Evidence-based guideline: management of an unprovoked first seizure in adults. Report of the Guideline Development Subcommittee of the American Academy of Neurology and the American Epilepsy Society. *Neurology.* 2015;84(16):1705–1713.
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6. Faulkner HJ, Arima H, Mohamed A. Latency to first interictal epileptiform discharge in epilepsy with outpatient ambulatory EEG. *Clin Neurophysiol.* 2012; 123(9):1732-1735.
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8. Seneviratne U, Mohamed A, Cook M, D'Souza W. The utility of ambulatory electroencephalography in routine clinical practice: a critical review. *Epilepsy Res.* 2013;105(1-2):1-12.