

Ambulatory EEG Monitoring

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[➔ Instructions for Use](#)

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Related Policies
None

Coverage Rationale

Overview

An electroencephalogram (EEG) is a diagnostic test that measures the electrical activity of the brain (brainwaves) using highly sensitive recording equipment attached to the scalp by fine electrodes. It is used to diagnose neurological conditions.

EEGs can be recorded by ambulatory cassette. Ambulatory cassette-recorded EEGs offer the ability to record the EEG on a long-term, outpatient basis. Recorded electrical activity is analyzed by playback through an audio system and/or video monitors.

CMS National Coverage Determinations (NCDs)

Medicare does not have an NCD for Ambulatory EEG Monitoring.

CMS Local Coverage Determinations (LCDs) and Articles

Local Coverage Determinations (LCDs)/Local Coverage Articles (LCAs) exist and compliance with these policies is required where applicable. For specific LCDs/LCAs, refer to the table for [Ambulatory EEG Monitoring](#).

For coverage guidelines for states/territories with no LCDs/LCAs:

- Ambulatory EEG monitoring may facilitate the differential diagnosis between seizures and syncopal attacks, sleep apnea, cardiac arrhythmias, or hysterical episodes. The test may also allow the investigator to identify the epileptic nature of some episodic periods of disturbed consciousness, mild confusion, or peculiar behavior, where resting EEG is not conclusive. 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 monitoring is not necessary to evaluate most seizures which are usually readily diagnosed by routine EEG studies, patient examination, and history.
- Ambulatory EEG monitoring is reasonable and necessary for the following indications:
 - Inconclusive EEGs
 - Suspected epileptic seizures with nondiagnostic routine EEG
 - Patients with confirmed epilepsy who are experiencing suspected non-epileptic events or for classification of seizure type [only ictal recordings can reliably be used to classify seizure type (or types) which is important in selecting appropriate anti-epileptic drug therapy]
 - Adjusting anti-epileptic medication levels
 - Localizing seizure focus when needed to guide patient management

- Seizures which are precipitated by naturally occurring cyclic events or environmental stimuli which are not reproducible in the hospital or clinic setting
- For diagnostic testing, most individuals will have an event or demonstrate interictal activity within 72 hours. Monitoring beyond 72 hours must be supported by written documentation for each additional 24 hours of monitoring and be made available upon request.

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service; however, language may be included in the listing below to indicate if a code is non-covered. Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CPT Code	Description
95700	Electroencephalogram (EEG) continuous recording, with video when performed, setup, patient education, and takedown when performed, administered in person by EEG technologist, minimum of 8 channels
95705	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, 2-12 hours; unmonitored
95706	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, 2-12 hours; with intermittent monitoring and maintenance
95707	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, 2-12 hours; with continuous, real-time monitoring and maintenance
95708	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, each increment of 12-26 hours; unmonitored
95709	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, each increment of 12-26 hours; with intermittent monitoring and maintenance
95710	Electroencephalogram (EEG), without video, review of data, technical description by EEG technologist, each increment of 12-26 hours; with continuous, real-time monitoring and maintenance
95711	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, 2-12 hours; unmonitored
95712	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, 2-12 hours; with intermittent monitoring and maintenance
95713	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, 2-12 hours; with continuous, real-time monitoring and maintenance
95714	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, each increment of 12-26 hours; unmonitored
95715	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, each increment of 12-26 hours; with intermittent monitoring and maintenance
95716	Electroencephalogram with video (VEEG), review of data, technical description by EEG technologist, each increment of 12-26 hours; with continuous, real-time monitoring and maintenance
95717	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation and report, 2-12 hours of EEG recording; without video
95718	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation and report, 2-12 hours of EEG recording; with video (VEEG)
95719	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, each increment of greater than 12 hours, up to 26 hours of EEG recording, interpretation and report after each 24-hour period; without video

CPT Code	Description
95720	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, each increment of greater than 12 hours, up to 26 hours of EEG recording, interpretation and report after each 24-hour period; with video (VEEG)
95721	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 36 hours, up to 60 hours of EEG recording, without video
95722	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 36 hours, up to 60 hours of EEG recording, with video (VEEG)
95723	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 60 hours, up to 84 hours of EEG recording, without video
95724	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 60 hours, up to 84 hours of EEG recording, with video (VEEG)
95725	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 84 hours of EEG recording, without video
95726	Electroencephalogram (EEG), continuous recording, physician or other qualified health care professional review of recorded events, analysis of spike and seizure detection, interpretation, and summary report, complete study; greater than 84 hours of EEG recording, with video (VEEG)

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Diagnosis Code	Description
For CPT Codes 95706, 95707, 95709, 95710, 95711, 95712, 95713, 95714, 95715, 95716, 95718, 95720, 95722, 95723, 95724, 95725, 95726	
F44.4	Conversion disorder with motor symptom or deficit
F44.5	Conversion disorder with seizures or convulsions
F44.6	Conversion disorder with sensory symptom or deficit
F44.7	Conversion disorder with mixed symptom presentation
G40.001	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, not intractable, with status epilepticus
G40.009	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, not intractable, without status epilepticus
G40.011	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus
G40.019	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus
G40.101	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, with status epilepticus
G40.109	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, without status epilepticus
G40.111	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, with status epilepticus
G40.119	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus
G40.201	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, with status epilepticus

Diagnosis Code	Description
For CPT Codes 95706, 95707, 95709, 95710, 95711, 95712, 95713, 95714, 95715, 95716, 95718, 95720, 95722, 95723, 95724, 95725, 95726	
G40.209	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, without status epilepticus
G40.211	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, with status epilepticus
G40.219	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus
G40.301	Generalized idiopathic epilepsy and epileptic syndromes, not intractable, with status epilepticus
G40.309	Generalized idiopathic epilepsy and epileptic syndromes, not intractable, without status epilepticus
G40.311	Generalized idiopathic epilepsy and epileptic syndromes, intractable, with status epilepticus
G40.319	Generalized idiopathic epilepsy and epileptic syndromes, intractable, without status epilepticus
G40.401	Other generalized epilepsy and epileptic syndromes, not intractable, with status epilepticus
G40.409	Other generalized epilepsy and epileptic syndromes, not intractable, without status epilepticus
G40.411	Other generalized epilepsy and epileptic syndromes, intractable, with status epilepticus
G40.419	Other generalized epilepsy and epileptic syndromes, intractable, without status epilepticus
G40.42	Cyclin-Dependent Kinase-Like 5 Deficiency Disorder
G40.501	Epileptic seizures related to external causes, not intractable, with status epilepticus
G40.509	Epileptic seizures related to external causes, not intractable, without status epilepticus
G40.801	Other epilepsy, not intractable, with status epilepticus
G40.802	Other epilepsy, not intractable, without status epilepticus
G40.803	Other epilepsy, intractable, with status epilepticus
G40.804	Other epilepsy, intractable, without status epilepticus
G40.811	Lennox-Gastaut syndrome, not intractable, with status epilepticus
G40.812	Lennox-Gastaut syndrome, not intractable, without status epilepticus
G40.813	Lennox-Gastaut syndrome, intractable, with status epilepticus
G40.814	Lennox-Gastaut syndrome, intractable, without status epilepticus
G40.821	Epileptic spasms, not intractable, with status epilepticus
G40.822	Epileptic spasms, not intractable, without status epilepticus
G40.823	Epileptic spasms, intractable, with status epilepticus
G40.824	Epileptic spasms, intractable, without status epilepticus
G40.833	Dravet syndrome, intractable, with status epilepticus
G40.834	Dravet syndrome, intractable, without status epilepticus
G40.89	Other seizures
G40.901	Epilepsy, unspecified, not intractable, with status epilepticus
G40.909	Epilepsy, unspecified, not intractable, without status epilepticus
G40.911	Epilepsy, unspecified, intractable, with status epilepticus
G40.919	Epilepsy, unspecified, intractable, without status epilepticus
G40.A01	Absence epileptic syndrome, not intractable, with status epilepticus
G40.A09	Absence epileptic syndrome, not intractable, without status epilepticus
G40.A11	Absence epileptic syndrome, intractable, with status epilepticus
G40.A19	Absence epileptic syndrome, intractable, without status epilepticus
G40.B01	Juvenile myoclonic epilepsy, not intractable, with status epilepticus
G40.B09	Juvenile myoclonic epilepsy, not intractable, without status epilepticus
G40.B11	Juvenile myoclonic epilepsy, intractable, with status epilepticus
G40.B19	Juvenile myoclonic epilepsy, intractable, without status epilepticus

Diagnosis Code	Description
For CPT Codes 95706, 95707, 95709, 95710, 95711, 95712, 95713, 95714, 95715, 95716, 95718, 95720, 95722, 95723, 95724, 95725, 95726	
G93.1	Anoxic brain damage, not elsewhere classified
G93.40	Encephalopathy, unspecified
G93.49	Other encephalopathy
I45.9	Conduction disorder, unspecified
I67.83	Posterior reversible encephalopathy syndrome
I67.9	Cerebrovascular disease, unspecified
R25.0	Abnormal head movements
R25.1	Tremor, unspecified
R25.2	Cramp and spasm
R25.3	Fasciculation
R25.8	Other abnormal involuntary movements
R25.9	Unspecified abnormal involuntary movements
R40.0	Somnolence
R40.1	Stupor
R40.20	Unspecified coma
R40.4	Transient alteration of awareness
R41.0	Disorientation, unspecified
R41.82	Altered mental status, unspecified
R55	Syncope and collapse
R56.1	Post traumatic seizures
R56.9	Unspecified convulsions
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
A17.82	Tuberculous meningoencephalitis
A39.81	Meningococcal encephalitis
A42.82	Actinomycotic encephalitis
A50.42	Late congenital syphilitic encephalitis
A52.14	Late syphilitic encephalitis
A83.0	Japanese encephalitis
A83.1	Western equine encephalitis
A83.2	Eastern equine encephalitis
A83.3	St Louis encephalitis
A83.4	Australian encephalitis
A83.5	California encephalitis
A83.8	Other mosquito-borne viral encephalitis
A83.9	Mosquito-borne viral encephalitis, unspecified
A84.0	Far Eastern tick-borne encephalitis [Russian spring-summer encephalitis]
A84.1	Central European tick-borne encephalitis
A84.89	Other tick-borne viral encephalitis
A84.9	Tick-borne viral encephalitis, unspecified
A85.0	Enteroviral encephalitis
A85.1	Adenoviral encephalitis
A85.2	Arthropod-borne viral encephalitis, unspecified
A85.8	Other specified viral encephalitis

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
A92.2	Venezuelan equine fever
A92.31	West Nile virus infection with encephalitis
A92.5	Zika virus disease
B01.11	Varicella encephalitis and encephalomyelitis
B02.0	Zoster encephalitis
B05.0	Measles complicated by encephalitis
B06.01	Rubella encephalitis
B10.01	Human herpesvirus 6 encephalitis
B10.09	Other human herpesvirus encephalitis
B26.2	Mumps encephalitis
B94.1	Sequelae of viral encephalitis
F44.4	Conversion disorder with motor symptom or deficit
F44.5	Conversion disorder with seizures or convulsions
F44.6	Conversion disorder with sensory symptom or deficit
F44.7	Conversion disorder with mixed symptom presentation
G04.00	Acute disseminated encephalitis and encephalomyelitis, unspecified
G04.01	Postinfectious acute disseminated encephalitis and encephalomyelitis (postinfectious ADEM)
G04.02	Postimmunization acute disseminated encephalitis, myelitis and encephalomyelitis
G04.30	Acute necrotizing hemorrhagic encephalopathy, unspecified
G04.31	Postinfectious acute necrotizing hemorrhagic encephalopathy
G04.81	Other encephalitis and encephalomyelitis
G04.90	Encephalitis and encephalomyelitis, unspecified
G05.3	Encephalitis and encephalomyelitis in diseases classified elsewhere
G40.001	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, not intractable, with status epilepticus
G40.009	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, not intractable, without status epilepticus
G40.011	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus
G40.019	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus
G40.101	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, with status epilepticus
G40.109	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, not intractable, without status epilepticus
G40.111	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, with status epilepticus
G40.119	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus
G40.201	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, with status epilepticus
G40.209	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, not intractable, without status epilepticus
G40.211	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, with status epilepticus
G40.219	Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
G40.301	Generalized idiopathic epilepsy and epileptic syndromes, not intractable, with status epilepticus
G40.309	Generalized idiopathic epilepsy and epileptic syndromes, not intractable, without status epilepticus
G40.311	Generalized idiopathic epilepsy and epileptic syndromes, intractable, with status epilepticus
G40.319	Generalized idiopathic epilepsy and epileptic syndromes, intractable, without status epilepticus
G40.401	Other generalized epilepsy and epileptic syndromes, not intractable, with status epilepticus
G40.409	Other generalized epilepsy and epileptic syndromes, not intractable, without status epilepticus
G40.411	Other generalized epilepsy and epileptic syndromes, intractable, with status epilepticus
G40.419	Other generalized epilepsy and epileptic syndromes, intractable, without status epilepticus
G40.42	Cyclin-Dependent Kinase-Like 5 Deficiency Disorder
G40.501	Epileptic seizures related to external causes, not intractable, with status epilepticus
G40.509	Epileptic seizures related to external causes, not intractable, without status epilepticus
G40.801	Other epilepsy, not intractable, with status epilepticus
G40.802	Other epilepsy, not intractable, without status epilepticus
G40.803	Other epilepsy, intractable, with status epilepticus
G40.804	Other epilepsy, intractable, without status epilepticus
G40.811	Lennox-Gastaut syndrome, not intractable, with status epilepticus
G40.812	Lennox-Gastaut syndrome, not intractable, without status epilepticus
G40.813	Lennox-Gastaut syndrome, intractable, with status epilepticus
G40.814	Lennox-Gastaut syndrome, intractable, without status epilepticus
G40.821	Epileptic spasms, not intractable, with status epilepticus
G40.822	Epileptic spasms, not intractable, without status epilepticus
G40.823	Epileptic spasms, intractable, with status epilepticus
G40.824	Epileptic spasms, intractable, without status epilepticus
G40.833	Dravet syndrome, intractable, with status epilepticus
G40.834	Dravet syndrome, intractable, without status epilepticus
G40.841	KCNQ2-related epilepsy, not intractable, with status epilepticus (Effective 10/01/2024)
G40.842	KCNQ2-related epilepsy, not intractable, without status epilepticus (Effective 10/01/2024)
G40.843	KCNQ2-related epilepsy, intractable, with status epilepticus (Effective 10/01/2024)
G40.844	KCNQ2-related epilepsy, intractable, without status epilepticus (Effective 10/01/2024)
G40.89	Other seizures
G40.901	Epilepsy, unspecified, not intractable, with status epilepticus
G40.909	Epilepsy, unspecified, not intractable, without status epilepticus
G40.911	Epilepsy, unspecified, intractable, with status epilepticus
G40.919	Epilepsy, unspecified, intractable, without status epilepticus
G40.A01	Absence epileptic syndrome, not intractable, with status epilepticus
G40.A09	Absence epileptic syndrome, not intractable, without status epilepticus
G40.A11	Absence epileptic syndrome, intractable, with status epilepticus
G40.A19	Absence epileptic syndrome, intractable, without status epilepticus
G40.B01	Juvenile myoclonic epilepsy, not intractable, with status epilepticus
G40.B09	Juvenile myoclonic epilepsy, not intractable, without status epilepticus
G40.B11	Juvenile myoclonic epilepsy, intractable, with status epilepticus
G40.B19	Juvenile myoclonic epilepsy, intractable, without status epilepticus
G90.81	Serotonin syndrome (Effective 10/01/2024)
G90.89	Other disorders of autonomic nervous system (Effective 10/01/2024)

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
G93.1	Anoxic brain damage, not elsewhere classified
G93.40	Encephalopathy, unspecified
G93.45	Developmental and epileptic encephalopathy (Effective 10/01/2024)
G93.49	Other encephalopathy
G93.5	Compression of brain
G93.6	Cerebral edema
H55.00	Unspecified nystagmus
I45.9	Conduction disorder, unspecified
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery
I60.2	Nontraumatic subarachnoid hemorrhage from anterior communicating artery
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries
I60.8	Other nontraumatic subarachnoid hemorrhage
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified
I61.3	Nontraumatic intracerebral hemorrhage in brain stem
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized
I61.8	Other nontraumatic intracerebral hemorrhage
I62.9	Nontraumatic intracranial hemorrhage, unspecified
I67.1	Cerebral aneurysm, nonruptured
I67.83	Posterior reversible encephalopathy syndrome
I67.9	Cerebrovascular disease, unspecified
R00.0	Tachycardia, unspecified
R06.81	Apnea, not elsewhere classified
R25.0	Abnormal head movements
R25.1	Tremor, unspecified
R25.2	Cramp and spasm
R25.3	Fasciculation
R25.8	Other abnormal involuntary movements
R25.9	Unspecified abnormal involuntary movements
R29.90	Unspecified symptoms and signs involving the nervous system
R40.0	Somnolence
R40.1	Stupor

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
R40.20	Unspecified coma
R40.2110	Coma scale, eyes open, never, unspecified time
R40.2111	Coma scale, eyes open, never, in the field [EMT or ambulance]
R40.2112	Coma scale, eyes open, never, at arrival to emergency department
R40.2113	Coma scale, eyes open, never, at hospital admission
R40.2114	Coma scale, eyes open, never, 24 hours or more after hospital admission
R40.2120	Coma scale, eyes open, to pain, unspecified time
R40.2121	Coma scale, eyes open, to pain, in the field [EMT or ambulance]
R40.2122	Coma scale, eyes open, to pain, at arrival to emergency department
R40.2123	Coma scale, eyes open, to pain, at hospital admission
R40.2124	Coma scale, eyes open, to pain, 24 hours or more after hospital admission
R40.2210	Coma scale, best verbal response, none, unspecified time
R40.2211	Coma scale, best verbal response, none, in the field [EMT or ambulance]
R40.2212	Coma scale, best verbal response, none, at arrival to emergency department
R40.2213	Coma scale, best verbal response, none, at hospital admission
R40.2214	Coma scale, best verbal response, none, 24 hours or more after hospital admission
R40.2220	Coma scale, best verbal response, incomprehensible words, unspecified time
R40.2221	Coma scale, best verbal response, incomprehensible words, in the field [EMT or ambulance]
R40.2222	Coma scale, best verbal response, incomprehensible words, at arrival to emergency department
R40.2223	Coma scale, best verbal response, incomprehensible words, at hospital admission
R40.2224	Coma scale, best verbal response, incomprehensible words, 24 hours or more after hospital admission
R40.2310	Coma scale, best motor response, none, unspecified time
R40.2311	Coma scale, best motor response, none, in the field [EMT or ambulance]
R40.2312	Coma scale, best motor response, none, at arrival to emergency department
R40.2313	Coma scale, best motor response, none, at hospital admission
R40.2314	Coma scale, best motor response, none, 24 hours or more after hospital admission
R40.2320	Coma scale, best motor response, extension, unspecified time
R40.2321	Coma scale, best motor response, extension, in the field [EMT or ambulance]
R40.2322	Coma scale, best motor response, extension, at arrival to emergency department
R40.2323	Coma scale, best motor response, extension, at hospital admission
R40.2324	Coma scale, best motor response, extension, 24 hours or more after hospital admission
R40.2340	Coma scale, best motor response, flexion withdrawal, unspecified time
R40.2341	Coma scale, best motor response, flexion withdrawal, in the field [EMT or ambulance]
R40.2342	Coma scale, best motor response, flexion withdrawal, at arrival to emergency department
R40.2343	Coma scale, best motor response, flexion withdrawal, at hospital admission
R40.2344	Coma scale, best motor response, flexion withdrawal, 24 hours or more after hospital admission
R40.2350	Coma scale, best motor response, localizes pain, unspecified time
R40.2351	Coma scale, best motor response, localizes pain, in the field [EMT or ambulance]
R40.2352	Coma scale, best motor response, localizes pain, at arrival to emergency department
R40.2353	Coma scale, best motor response, localizes pain, at hospital admission
R40.2354	Coma scale, best motor response, localizes pain, 24 hours or more after hospital admission
R40.2361	Coma scale, best motor response, obeys commands, in the field [EMT or ambulance]
R40.2362	Coma scale, best motor response, obeys commands, at arrival to emergency department

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
R40.2363	Coma scale, best motor response, obeys commands, at hospital admission
R40.2364	Coma scale, best motor response, obeys commands, 24 hours or more after hospital admission
R40.2A	Nontraumatic coma due to underlying condition
R40.4	Transient alteration of awareness
R41.0	Disorientation, unspecified
R41.3	Other amnesia
R41.82	Altered mental status, unspecified
R41.85	Anosognosia (Effective 10/01/2024)
R45.1	Restlessness and agitation
R47.01	Aphasia
R55	Syncope and collapse
R56.1	Post traumatic seizures
R56.9	Unspecified convulsions
S06.0XAA	Concussion with loss of consciousness status unknown, initial encounter
S06.0XAD	Concussion with loss of consciousness status unknown, subsequent encounter
S06.0XAS	Concussion with loss of consciousness status unknown, sequela
S06.1X0S	Traumatic cerebral edema without loss of consciousness, sequela
S06.1X1S	Traumatic cerebral edema with loss of consciousness of 30 minutes or less, sequela
S06.1X2S	Traumatic cerebral edema with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.1X3S	Traumatic cerebral edema with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.1X4S	Traumatic cerebral edema with loss of consciousness of 6 hours to 24 hours, sequela
S06.1X5S	Traumatic cerebral edema with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.1X6S	Traumatic cerebral edema with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.1X9S	Traumatic cerebral edema with loss of consciousness of unspecified duration, sequela
S06.1XAA	Traumatic cerebral edema with loss of consciousness status unknown, initial encounter
S06.1XAD	Traumatic cerebral edema with loss of consciousness status unknown, subsequent encounter
S06.1XAS	Traumatic cerebral edema with loss of consciousness status unknown, sequela
S06.2XAA	Diffuse traumatic brain injury with loss of consciousness status unknown, initial encounter
S06.2XAD	Diffuse traumatic brain injury with loss of consciousness status unknown, subsequent encounter
S06.2XAS	Diffuse traumatic brain injury with loss of consciousness status unknown, sequela
S06.30AA	Unspecified focal traumatic brain injury with loss of consciousness status unknown, initial encounter
S06.30AD	Unspecified focal traumatic brain injury with loss of consciousness status unknown, subsequent encounter
S06.30AS	Unspecified focal traumatic brain injury with loss of consciousness status unknown, sequela
S06.31AA	Contusion and laceration of right cerebrum with loss of consciousness status unknown, initial encounter
S06.31AD	Contusion and laceration of right cerebrum with loss of consciousness status unknown, subsequent encounter
S06.31AS	Contusion and laceration of right cerebrum with loss of consciousness status unknown, sequela
S06.32AA	Contusion and laceration of left cerebrum with loss of consciousness status unknown, initial encounter
S06.32AD	Contusion and laceration of left cerebrum with loss of consciousness status unknown, subsequent encounter
S06.32AS	Contusion and laceration of left cerebrum with loss of consciousness status unknown, sequela

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
S06.33AA	Contusion and laceration of cerebrum, unspecified, with loss of consciousness status unknown, initial encounter
S06.33AD	Contusion and laceration of cerebrum, unspecified, with loss of consciousness status unknown, subsequent encounter
S06.33AS	Contusion and laceration of cerebrum, unspecified, with loss of consciousness status unknown, sequela
S06.34AA	Traumatic hemorrhage of right cerebrum with loss of consciousness status unknown, initial encounter
S06.34AD	Traumatic hemorrhage of right cerebrum with loss of consciousness status unknown, subsequent encounter
S06.34AS	Traumatic hemorrhage of right cerebrum with loss of consciousness status unknown, sequela
S06.35AA	Traumatic hemorrhage of left cerebrum with loss of consciousness status unknown, initial encounter
S06.35AD	Traumatic hemorrhage of left cerebrum with loss of consciousness status unknown, subsequent encounter
S06.35AS	Traumatic hemorrhage of left cerebrum with loss of consciousness status unknown, sequela
S06.36AA	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness status unknown, initial encounter
S06.36AD	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness status unknown, subsequent encounter
S06.36AS	Traumatic hemorrhage of cerebrum, unspecified, with loss of consciousness status unknown, sequela
S06.37AA	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness status unknown, initial encounter
S06.37AD	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness status unknown, subsequent encounter
S06.37AS	Contusion, laceration, and hemorrhage of cerebellum with loss of consciousness status unknown, sequela
S06.38AA	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness status unknown, initial encounter
S06.38AD	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness status unknown, subsequent encounter
S06.38AS	Contusion, laceration, and hemorrhage of brainstem with loss of consciousness status unknown, sequela
S06.4XAA	Epidural hemorrhage with loss of consciousness status unknown, initial encounter
S06.4XAD	Epidural hemorrhage with loss of consciousness status unknown, subsequent encounter
S06.4XAS	Epidural hemorrhage with loss of consciousness status unknown, sequela
S06.5XAA	Traumatic subdural hemorrhage with loss of consciousness status unknown, initial encounter
S06.5XAD	Traumatic subdural hemorrhage with loss of consciousness status unknown, subsequent encounter
S06.5XAS	Traumatic subdural hemorrhage with loss of consciousness status unknown, sequela
S06.6XAA	Traumatic subarachnoid hemorrhage with loss of consciousness status unknown, initial encounter
S06.6XAD	Traumatic subarachnoid hemorrhage with loss of consciousness status unknown, subsequent encounter
S06.6XAS	Traumatic subarachnoid hemorrhage with loss of consciousness status unknown, sequela
S06.81AA	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, initial encounter
S06.81AD	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, subsequent encounter
S06.81AS	Injury of right internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, sequela

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
S06.82AA	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, initial encounter
S06.82AD	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, subsequent encounter
S06.82AS	Injury of left internal carotid artery, intracranial portion, not elsewhere classified with loss of consciousness status unknown, sequela
S06.890S	Other specified intracranial injury without loss of consciousness, sequela
S06.891S	Other specified intracranial injury with loss of consciousness of 30 minutes or less, sequela
S06.892S	Other specified intracranial injury with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.893S	Other specified intracranial injury with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.894S	Other specified intracranial injury with loss of consciousness of 6 hours to 24 hours, sequela
S06.895S	Other specified intracranial injury with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.896S	Other specified intracranial injury with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.89AA	Other specified intracranial injury with loss of consciousness status unknown, initial encounter
S06.89AD	Other specified intracranial injury with loss of consciousness status unknown, subsequent encounter
S06.89AS	Other specified intracranial injury with loss of consciousness status unknown, sequela
S06.8A0A	Primary blast injury of brain, not elsewhere classified without loss of consciousness, initial encounter
S06.8A0D	Primary blast injury of brain, not elsewhere classified without loss of consciousness, subsequent encounter
S06.8A0S	Primary blast injury of brain, not elsewhere classified without loss of consciousness, sequela
S06.8A1A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 30 minutes or less, initial encounter
S06.8A1D	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 30 minutes or less, subsequent encounter
S06.8A1S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 30 minutes or less, sequela
S06.8A2A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, initial encounter
S06.8A2D	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, subsequent encounter
S06.8A2S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 31 minutes to 59 minutes, sequela
S06.8A3A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, initial encounter
S06.8A3D	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, subsequent encounter
S06.8A3S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 1 hour to 5 hours 59 minutes, sequela
S06.8A4A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, initial encounter
S06.8A4D	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, subsequent encounter
S06.8A4S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of 6 hours to 24 hours, sequela

Diagnosis Code	Description
For CPT Codes 95700, 95705, 95708, 95717, 95719, 95721	
S06.8A5A	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, initial encounter
S06.8A5D	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, subsequent encounter
S06.8A5S	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours with return to pre-existing conscious level, sequela
S06.8A6A	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, initial encounter
S06.8A6D	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, subsequent encounter
S06.8A6S	Primary blast injury of brain, not elsewhere classified with loss of consciousness greater than 24 hours without return to pre-existing conscious level with patient surviving, sequela
S06.8A7A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of any duration with death due to brain injury prior to regaining consciousness, initial encounter
S06.8A8A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of any duration with death due to other cause prior to regaining consciousness, initial encounter
S06.8A9A	Primary blast injury of brain, not elsewhere classified with loss of consciousness of unspecified duration, initial encounter
S06.8A9D	Primary blast injury of brain, not elsewhere classified with loss of consciousness of unspecified duration, subsequent encounter
S06.8A9S	Primary blast injury of brain, not elsewhere classified with loss of consciousness of unspecified duration, sequela
S06.8AAA	Primary blast injury of brain, not elsewhere classified with loss of consciousness status unknown, initial encounter
S06.8AAD	Primary blast injury of brain, not elsewhere classified with loss of consciousness status unknown, subsequent encounter
S06.8AAS	Primary blast injury of brain, not elsewhere classified with loss of consciousness status unknown, sequela
S06.9XAA	Unspecified intracranial injury with loss of consciousness status unknown, initial encounter
S06.9XAD	Unspecified intracranial injury with loss of consciousness status unknown, subsequent encounter
S06.9XAS	Unspecified intracranial injury with loss of consciousness status unknown, sequela

Centers for Medicare and Medicaid Services (CMS) Related Documents

After checking the table below and searching the [Medicare Coverage Database](#), if no NCD, LCD, or LCA is found, refer to the criteria as noted in the [Coverage Rationale](#) section above.

NCD	LCD	Article	Contractor Type	Contractor Name
Ambulatory EEG Monitoring				
N/A	L33399 EEG – Ambulatory Monitoring	A57030 Billing and Coding: EEG – Ambulatory Monitoring	Part A and B MAC	NGS
	L34521 Special EEG Tests	A57667 Billing and Coding: Special EEG Tests	Part A and B MAC	First Coast
	L33447 Special Electroencephalography	A56771 Billing and Coding: Special Electroencephalography	Part B MAC	Palmetto**

Medicare Administrative Contractor (MAC) With Corresponding States/Territories

MAC Name (Abbreviation)	States/Territories
CGS Administrators, LLC (CGS)	KY, OH
First Coast Service Options, Inc. (First Coast)	FL, PR, VI
National Government Services, Inc. (NGS)	CT, IL, ME, MA, MN, NH, NY, RI, VT, WI
Noridian Healthcare Solutions, LLC (Noridian)	AS, AK, AZ, CA, GU, HI, ID, MT, NV, ND, Northern Mariana Islands, OR, SD, UT, WA, WY
Novitas Solutions, Inc. (Novitas)	AR, CO, DC, DE, LA, MD, MS, NJ, NM, OK, PA, TX, VA**
Palmetto GBA (Palmetto)	AL, GA, NC, SC, TN, VA**, WV
Wisconsin Physicians Service Insurance Corporation (WPS)*	IA, IN, KS, MI, MO, NE

Notes

*Wisconsin Physicians Service Insurance Corporation: Contract Number 05901 applies only to WPS Legacy Mutual of Omaha MAC A Providers.

**For the state of Virginia: Part B services for the city of Alexandria and the counties of Arlington and Fairfax are excluded for the Palmetto GBA jurisdiction and included within the Novitas Solutions, Inc. jurisdiction.

CMS Transmittals

Transmittal 12299, Change Request 13017, Dated 10/12/2023, [An Omnibus CR to Implement Policy Updates in the CY 2023 PFS Final Rule, Including (1) [Removal of Selected NCDs \(NCD 160.22 Ambulatory EEG Monitoring\)](#), and (2) [Expanding Coverage of Colorectal Cancer Screening - Full Agile Pilot CR](#)]

MLN Matters

[Article MM13017 Revised, Removal of a National Coverage Determination & Expansion of Coverage of Colorectal Cancer Screening](#)

Clinical Evidence

Timpte et al. (2023) performed a retrospective, monocentric observational study of inpatient video-electroencephalography (VEM) to assess whether 48 hour or 72-hour VEM is more effective than 24-hour VEM. The study included 111 participants, and the authors indicated that 69.4% (77/111) of patients displayed epileptic abnormalities (EAs) during VEM. In this group, the first occurrence of EAs was observed within 24 hours in 92.2% (71/77) of patients and within 24–72 hours in 7.8% (6/77). They observed that extended VEM could be beneficial in cases with a high likelihood of epilepsy or where other methods like sleep-electroencephalogram (EEG) or ambulatory EEG yield inconclusive results. Additionally, they reported that VEM monitoring for up to 72 hours enhances the likelihood of detecting EA in individuals with focal epilepsy and undetermined epilepsy types, as well as increases the chance of capturing spontaneous seizures. The study was limited regarding anti-seizure medication (ASM) management since the study included patients who were already on stable ASM treatment, although they did not meet the International League Against Epilepsy (ILAE) diagnostic criteria for epilepsy at the time of admission.

Hernandez-Ronquillo et al. (2023) conducted a prospective cohort study to determine the diagnostic accuracy of ambulatory electroencephalogram (aEEG) at detecting interictal epileptiform discharges (IEDs)/seizures compared with routine EEG (rEEG) and repetitive/ second rEEG in those with a first single unprovoked seizure (FSUS). The relationship between IED/seizures on aEEG and seizure recurrence within one year of follow-up was also assessed. All one hundred participants with FSUS underwent a set of three sequential EEGs (first rEEG, second rEEG, and aEEG) which were interpreted by an EEG-certified epileptologist/ neurologist. The patients had 52 weeks of follow-up until they either had a second unprovoked seizure or maintained the single seizure status. Ambulatory EEG captured IED/seizures with a sensitivity of 72%, compared with 11% for the first rEEG and 22% for the second rEEG. The diagnostic performance of the aEEG was statistically better [area under the curve (AUC: 0.85)] compared with the first rEEG (AUC: 0.56) and second rEEG (AUC: 0.60). There were no statistically significant differences between the three EEG modalities regarding specificity and positive predictive value. Finally, IED/seizure on the aEEG was associated with more than three times the hazard of seizure recurrence. According to the authors, aEEGs overall diagnostic accuracy at capturing IED/seizures in those presenting with FSUS was higher than the first and second rEEGs. Additionally, IED/seizures on the aEEG were associated with an increased risk of seizure recurrence. Study limitations included that each reader was aware of the patient's history and performed the clinical assessment, which made it difficult to objectively evaluate intrarater reliability.

Knowledge of the patient's history may increase interrater and intrarater reliability when interpreting EEGs. The authors recommend future studies to evaluate the accuracy of aEEG.

Chen et al. (2020) performed a retrospective cohort study on seizure symptoms and ambulatory EEG findings. 9,221 consecutive ambulatory video-EEG studies from 35 states were included in the study. History that included motor symptoms [Odds Ratio (OR) = 1.53] or automatisms (OR = 1.42) was correlated with higher occurrence of epileptiform discharges. History of sensory symptoms (OR = 0.76) predicted lack of epileptiform discharges. Patient-reported symptoms that were associated with increased occurrence of epileptiform discharges included moaning, lip-smacking, verbal automatism, eye-blinking, aggression, déjà vu, muscle pain, urinary incontinence, jerking and choking. Auditory hallucination, memory deficits, syncope, lightheadedness, fibromyalgia, giddiness, and chronic pain predicted absence of epileptiform discharges. Most of the epileptiform discharges consisted only of interictal sharp waves or spikes. The authors concluded that their study showed that the use of the International League Against Epilepsy (ILAE) 2017 symptom categories may help guide ambulatory video-EEG studies. The inaccuracy of initial clinical history could be an inherent limitation due to the retrospective study design.

Cho et al. (2019) evaluated the diagnostic yield and clinical utility of video electronencephalography (vEEG) performed in a comprehensive epilepsy center. The authors retrospectively reviewed all cases of vEEG performed from May 2003 to April 2018 and analyzed the data to determine its clinical utility and diagnostic yield. A total of 1,025 cases of vEEG were included. The mean duration of vEEG was 2.3 ± 1.6 days. A total of 763 vEEGs documented epileptic seizures or interictal epileptiform discharges (IEDs) to confirm the diagnosis of epilepsy. There were 99 psychogenic non-epileptic seizure, 36 status epilepticus, and 34 vEEGs which revealed generalized or focal slow activities without any clinical seizures or IEDs. Video EEG was normal in 170 cases. The diagnostic yield of vEEG varied from 83.4 to 88.4% depending on its definition. The proportion of epilepsy in total cases of vEEG continued to decrease from 77.2 to 61.4%. In contrast, the proportion of normal vEEG steadily increased from 4.1 to 24.1% during the same time period. According to the authors, this study shows the utility of vEEG in clinical circumstances beyond epilepsy. Video EEG can play a pivotal role in the diagnostic approach to epilepsy and its differential diagnoses. Study limitations included possible selection bias, the vEEG reviewer was not blinded, and since phase I vEEG did not provide complete localization of the epileptogenic zone, the classification of epilepsy was not confirmative.

Syed et al. (2019) conducted a retrospective cohort study designed to evaluate the outcome of diagnostic ambulatory video-electroencephalogram (EEG) monitoring (AVEM) performed nationwide on patients over one year and compared the findings with the outcome of inpatient adult and pediatric video-EEG monitoring (VEM) performed at two academic epilepsy centers during that same year. The composite percentage of VEM records with epileptiform activity on EEG tracings or at least one video-recorded pushbutton event was the primary outcome measured. Patient-reported symptoms documented in AVEM event diaries were also evaluated. Of 9,221 AVEM recordings performed across 28 states, 62.5% attained the primary outcome. At least one patient-activated pushbutton event was captured on video in 54% of AVEM recordings (53.6% in adults, 56.1% in children). Epileptiform activity was reported in 1657 (18.0%) AVEM recordings [1473 (88.9%) only interictal, 9 (0.5%) only ictal, 175 (10.6%) both interictal and ictal]. Most common patient-reported symptomatology during AVEM pushbutton events was behavioral/autonomic/emotional in adults and children. Compared to AVEM, inpatient VEM captured more confirmed representative events in adult and pediatric samples. According to the authors, AVEM may be a useful modality for non-urgent and non-surgical evaluation of paroxysmal events, which could be considered when inpatient level-of-care is not medically necessary. Additionally, AVEM may be beneficial to patients who report seizures or events resembling epilepsy that occur in certain environments or with specific triggers that may not be replicated in the hospital setting. Limitations include the retrospective nature of the study.

Carlson et al. (2018) conducted a study designed to compare home video telemetry (HVT) and inpatient video telemetry (iVT) in children to determine diagnostic efficacy, recording quality, and acceptability to caregivers. HVT was defined as a study using ambulatory electroencephalogram (aEEG) with synchronized video. Between 2014 and 2017, 33 consecutive patients referred for HVT were included in the study. Over the same period, 29 iVT patients were used as a comparative group. Patients were between 1 - 17 years old. 62% of iVT patients and 64% of HVT patients had typical attacks during the recording. 59% of iVT and 70% of HVT recordings were considered to have answered the referral question. Study quality was similar in both groups. In HVT studies the rate of equipment difficulties was 52%; problems included camera positioning and failure to turn on the infrared button at night. Diagnostic information was lost in 15% of patients. 76% of parents/caregivers of HVT patients would choose this investigation again. The authors concluded that HVT is able to provide results of similar technical and diagnostic quality to iVT in a pediatric setting and may potentially increase the capacity for long term EEG monitoring. User error was problematic in a minority of cases but did not affect the diagnostic utility. Additionally, HVT was acceptable to most parents and caregivers. Limitations include the small sample size and lack of randomization.

Kandler et al. (2017) compared video ambulatory electroencephalography (V-aEEG) with inpatient video telemetry (IPVT) to determine diagnostic efficiency, quality of video EEG recording, patient acceptability, and the amount of extra technologist time required for home studies. Between 1/11/2013 to 1/1/2016, 41 adult individuals underwent a 48-hour recording of V-aEEG and a comparison group (n = 64) underwent IPVT for diagnostic purposes. Inpatients admitted for longer than 48 hours were excluded. Of patients investigated for diagnosis of attacks, 74% V-aEEG patients and 62% IPVT had typical attacks during the investigation. All PSGs were useful in interpreting the MSLTs. Diagnostic questions were answered by 73% V-aEEGs and 73% IPVTs. Quality of EEG and video recording was similar using V-aEEG and IPVT. Four patients had difficulty using V-aEEG equipment, but diagnostic information was lost in only one. 5% of V-aEEG patients would have preferred hospital investigation but 45% of IPVT patients would have preferred home investigation. Extra technologist time for home visits (mean 2 hours) was required only for the first seven patients. The authors concluded V-aEEG provided recordings of similar quality and efficacy as inpatient studies, required no extra technologist time, was acceptable to patients, and could potentially provide long-term EEG monitoring without the need for hospital admissions. Limitations include lack of randomization and small study size.

Lawley et al. (2015) conducted a systematic review of the literature on the use of ambulatory electroencephalogram (aEEG) for the diagnosis and clinical management of adult patients with epileptic or nonepileptic attack disorder. Nine studies were included in the analysis. Inclusion criteria included the impact of aEEG on diagnosis, syndromic classification, management decision or clinical outcomes; comparative investigations with routine EEG; EEG with activation techniques or inpatient video-telemetry (IVT); outpatient settings; adult patients (18 years or older); and a minimum of 16 EEG recording channels. The authors concluded that in patients with equivocal findings on routine EEGs, aEEG is a useful diagnostic tool and influences management decisions. Additionally, aEEG may be more likely to capture events when compared to sleep-deprived EEG. Limitations include the lack of large, prospective studies comparing aEEG with IVT and small sample sizes of some of the included studies.

Clinical Practice Guidelines

American Clinical Neurophysiology Society (ACNS)

Tatum et al. (2022a) published an ACNS guideline on the minimum technical requirements for performing ambulatory electroencephalogram (aEEG), which lists the following potential clinical indications of aEEG:

- Differentiating epileptic and nonepileptic events.
- Classifying seizure types and epilepsy syndromes.
- Prolonged interictal EEG sampling when standard EEG is nondiagnostic.
- Identifying seizure triggers that occur outside the hospital setting.
- Quantifying seizure frequency and duration.
- Making decisions regarding adjustment of anti-seizure medications.

The ACNS released “Guidelines for Long-Term Monitoring for Epilepsy” in 2008. In the guidelines, long-term monitoring was defined as the simultaneous recording of electroencephalogram (EEG) and clinical behavior over extended periods of time to evaluate patients with paroxysmal disturbances of cerebral function. Long-term monitoring may or may not include video recordings for the documentation of clinical behavior (observational techniques could also be used). The guidelines noted that video electroencephalography (vEEG) was the most effective means of behavior monitoring in an in-patient setting. Advantages for vEEG were noted to include: (1) an objective record of behavior, available for replay and associated direct EEG correlation; (2) temporal correlations accurate when synchronization is achieved with time code generators or same tape recording; (3) usefulness in seizures of all types, even if minimal behavioral manifestations are initially unrecognized since the permanent record allows subsequent review of behavior associated with EEG changes. The interaction between monitoring personnel and the patient, when properly structured, defines the events more explicitly than other mechanisms. Disadvantages included the need for specialized equipment, the time commitment, and the limitation of movement due to the requirement for the patient to stay in view of the camera. According to the authors, a push button event marker, activated by a family member or friend can provide temporal correlations of clinical episodes on aEEG recordings and is a major form of behavior monitoring, particularly in young children or in patients who cannot reliably self-report. The guideline notes clinical indications for ambulatory continuous EEG recording include documentation and quantification of ictal (clinical and subclinical) and interictal EEG features and assessment of their relationship to reported behavior; computer assisted aEEG has an additional clinical indication for detection of seizures without an obvious behavioral change. The guideline lists the following indications for long-term monitoring for epilepsy (LTME):

- Identification of epileptic paroxysmal electrographic and/or behavioral abnormalities, which include epileptic seizures, overt and subclinical, and documentation of interictal epileptiform discharges. EEG and/or behavioral abnormalities may aid in the differential diagnosis between epileptic disorders and conditions associated with intermittent symptoms because of nonepileptic mechanisms (e.g., cardiac arrhythmias, syncope, narcolepsy, other sleep disturbances, transient ischemic attacks, psychogenic seizures, other behavioral disorders).

- Verification of the epileptic nature of the new incidences in a patient who was previously documented to have controlled seizures.
- Classification of clinical seizure type(s) in a patient with documented but poorly characterized epilepsy.
- Characterization (localization, lateralization, distribution) of EEG abnormalities, both ictal and interictal, associated with seizure disorders.
- Characterization of the relationship of seizures to specific precipitating circumstances or stimuli (e.g., catamenial, nocturnal, activity-related, situation-related). Characterization and/or verification of temporal patterns of seizure occurrence, either spontaneous or with respect to therapeutic manipulations (e.g., drug regimens).
- Characterization of behavioral consequences of epileptiform discharges as measured by specific tasks.
- Quantification of the number or frequency of seizures and/or interictal discharges and their association with naturally occurring events or cycles.
- Quantitative documentation of the EEG response (ictal and interictal) to a therapeutic modification or intervention (e.g., drug alteration).
- Monitoring objective EEG features are useful in those with frequent seizures, particularly with absence and other seizures having minimal or indiscernible behavioral manifestations (ACNS, 2008).

Canadian Society of Clinical Neurophysiologists

Dash et al. (2017) developed an updated version of the minimal standards for electroencephalogram (EEG) guideline which was designed to serve as a benchmark for further development, standardization, and quality care in Canada. The guideline notes that ambulatory electroencephalogram (aEEG) may be considered as an alternative to inpatient continuous electroencephalogram or long-term monitoring for epilepsy and aEEG is most beneficial in capturing interictal epileptiform discharges (IEDs), subclinical seizures, sleep/wake differentiation, or activity that does not require simultaneous video recording for diagnosis.

International Federation of Clinical Neurophysiology (IFCN) and International League Against Epilepsy (ILAE)

Tatum et al. (2022b), The Working Group of the International Federation of Clinical Neurophysiology (IFCN) and International League Against Epilepsy (ILAE), reviewed the published evidence to develop indications (and minimum standards) for conducting inpatient long term video-electroencephalographic monitoring (LTVEM). The following were recommended:

- To differentiate between epileptic and non-epileptic events, in patients where the diagnosis is in question (strong recommendation).
- To classify patients with epilepsy in whom the seizure type or epilepsy syndrome is undetermined (strong recommendation).

Tatum et al. (2018) developed an IFCN guideline to evaluate the clinical utility for electroencephalogram (EEG) in adults with epilepsy. The guideline notes that EEG remains an essential diagnostic tool for people with epilepsy and overall, there is good evidence that ambulatory electroencephalogram (aEEG) is feasible and provides similar diagnostic information to inpatient EEG. According to the guideline, 95% of interictal epileptiform discharges (IEDs) are recorded within a two-day period. The authors note aEEG is less restrictive to patients and allows evaluation in their natural environments with exposure to daily natural seizure triggers. The IFCN summary statements/recommendations include that video-EEG monitoring can provide a definitive diagnosis in most individuals with epilepsy when seizures are recorded.

Velis et al. (2007) published a position paper from the ILAE, which contains recommendations regarding the requirements and applications for long-term recordings in epilepsy. Specifically, the paper's purpose was to update the state of knowledge based on existing national and international guidelines on the application of long-term monitoring (LTM) (approximately 5.5 to 7.6 days) and to provide a selective review of the literature on controversies and issues such as techniques to increase the yield of clinically relevant seizures such as video electroencephalography (vEEG). The ILAE recommends the use of hospital-based LTM in epilepsy for assessing seizure type and frequency, evaluating status epilepticus, in noninvasive and invasive video/EEG investigations for epilepsy surgery, and for the differential diagnosis between epilepsy and paroxysmally occurring nonepileptic conditions, in children and in adults. The paper notes that ambulatory outpatient LTM may be used as an alternative for inpatient LTM in cases where the latter is not feasible or when activation procedures aimed at increasing seizure yield are not indicated; however, outpatient ambulatory monitoring may be less informative than inpatient in some cases. For pediatric populations, ambulatory electroencephalogram (aEEG) monitoring is only recommended in the first approach of differential diagnosis or in children with continuous spike and wave during sleep, without any clinical seizure. The ILAE recommends the use of LTM in epilepsy for the following indications:

- Detection, characterization, and quantification on video/EEG of ictal events, including the appropriate activation procedures to elicit them in individual patients in whom the diagnosis of an underlying epilepsy has already been made, and when the type of seizure or syndrome is not clear.
- Differential diagnosis between epileptic and non-epileptic conditions, characterized by frequently and intermittently occurring behavioral changes including psychogenic nonepileptic events and sleep disorders, particularly those involving paroxysmal movement disorders.
- Documentation of diurnal or circadian variation in occurrence of epileptiform paroxysms, in conjunction with pharmacological interventions and/or of the effect of these interventions on diurnal or circadian behavioral changes.
- Documentation of specific patterns in the occurrence of epileptiform paroxysms during sleep and/or of disruption of sleep architecture in so-called “cognitive epilepsy” cases in the pediatric population.

National Institute for Health and Care Excellence (NICE)

In a 2022 guideline, updated in 2025, regarding epilepsy, NICE states that if the person's history and examination suggests an epileptic seizure, and a diagnosis of epilepsy is suspected, a routine electroencephalogram (EEG) should be considered and carried out while awake to support diagnosis and provide information about seizure type or epilepsy syndrome. However, if routine and sleep-deprived EEG results are normal and diagnostic uncertainty persists, longer-term monitoring with ambulatory EEG (for up to 48 hours) could be considered.

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Policy History/Revision Information

Date	Summary of Changes
11/01/2025	<p data-bbox="337 296 1321 327">Centers for Medicare and Medicaid Services (CMS) Related Documents</p> <ul data-bbox="337 331 1495 636" style="list-style-type: none"><li data-bbox="337 331 1495 390">• Updated list of documents available in the <i>Medicare Coverage Database</i> to reflect the most current information<li data-bbox="337 394 1495 510">• Added reference link to <i>Transmittal 12299, Change Request 13017, Dated 10/12/2023, [An Omnibus CR to Implement Policy Updates in the CY 2023 PFS Final Rule, Including (1) Removal of Selected NCDs (NCD 160.22 Ambulatory EEG Monitoring), and (2) Expanding Coverage of Colorectal Cancer Screening - Full Agile Pilot CR]</i><li data-bbox="337 514 1495 636">• Removed reference link to <i>Transmittal 11865, Change Request 13017, Dated 02/16/2023, [An Omnibus CR to Implement Policy Updates in the CY 2023 PFS Final Rule, Including (1) Removal of Selected NCDs (NCD 160.22 Ambulatory EEG Monitoring), and (2) Expanding Coverage of Colorectal Cancer Screening - Full Agile Pilot CR]</i> <p data-bbox="337 640 662 672">Supporting Information</p> <ul data-bbox="337 676 1443 728" style="list-style-type: none"><li data-bbox="337 676 1443 707">• Updated <i>Clinical Evidence</i> and <i>References</i> sections to reflect the most current information<li data-bbox="337 711 915 728">• Archived previous policy version MMP379.10

Instructions for Use

The Medicare Advantage Policy documents are generally used to support UnitedHealthcare coverage decisions. It is expected providers retain or have access to appropriate documentation when requested to support coverage. This document may be used as a guide to help determine applicability:

- Medical necessity coverage guidelines; including documentation requirements, and/or
- Medicare coding or billing requirements.

Medicare Advantage Policies are applicable to UnitedHealthcare Medicare Advantage Plans offered by UnitedHealthcare and its affiliates. This Policy is provided for informational purposes and does not constitute medical advice. It is intended to serve only as a general reference and is not intended to address every aspect of a clinical situation. Physicians and patients should not rely on this information in making health care decisions. Physicians and patients must exercise their independent clinical discretion and judgment in determining care. Treating physicians and healthcare providers are solely responsible for determining what care to provide to their patients. Members should always consult their physician before making any decisions about medical care.

Benefit coverage for health services is determined by the member specific benefit plan document and applicable laws that may require coverage for a specific service. The member specific benefit plan document identifies which services are covered, which are excluded, and which are subject to limitations. In the event of a conflict, the member specific benefit plan document supersedes this policy. For more information on a specific member's benefit coverage, please call the customer service number on the back of the member ID card or refer to the [Administrative Guide](#).

Medicare Advantage Policies are developed as needed, are regularly reviewed, and updated, and are subject to change. They represent a portion of the resources used to support UnitedHealthcare coverage decision making. UnitedHealthcare may modify these Policies at any time by publishing a new version on this website. Medicare source materials used to develop these policies may include, but are not limited to, CMS statutes, regulations, National Coverage Determinations (NCDs), Local Coverage Determinations (LCDs), and manuals. This document is not a replacement for the Medicare source materials that outline Medicare coverage requirements. The information presented in this Policy is believed to be accurate and current as of the date of publication. Where there is a conflict between this document and Medicare source materials, the Medicare source materials apply. Medicare Advantage Policies are the property of UnitedHealthcare. Unauthorized copying, use, and distribution of this information are strictly prohibited.

UnitedHealthcare follows Medicare coverage guidelines found in statutes, regulations, NCDs, and LCDs to determine coverage. The clinical coverage criteria governing certain items or services referenced in this Medical Policy have not been fully established in applicable Medicare guidelines because there is an absence of any applicable Medicare statutes, regulations, NCDs, or LCDs setting forth coverage criteria and/or the applicable NCDs or LCDs include flexibility that explicitly allows for coverage in circumstances beyond the specific indications that are listed in an NCD or LCD. As a result, in these circumstances, UnitedHealthcare applies internal coverage criteria as referenced in this Medical Policy.

The internal coverage criteria in this Medical Policy was developed through an evaluation of the current relevant clinical evidence in acceptable clinical literature and/or widely used treatment guidelines. UnitedHealthcare evaluated the evidence to determine whether it was of sufficient quality to support a finding that the items or services discussed in the policy might, under certain circumstances, be reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.

Providers are responsible for submission of accurate claims. Medicare Advantage Policies are intended to ensure that coverage decisions are made accurately. UnitedHealthcare Medicare Advantage Policies use Current Procedural Terminology (CPT®), Centers for Medicare and Medicaid Services (CMS), or other coding guidelines. References to CPT® or other sources are for definitional purposes only and do not imply any right to reimbursement or guarantee claims payment.

For members in UnitedHealthcare Medicare Advantage plans where a delegate manages utilization management and prior authorization requirements, the delegate's requirements need to be followed.