# Electroencephalogram (EEG) Technologies

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| **Policy ID:** | HHO-DE-MP-1088 |
| **Approved By:** | Highmark Health Options – Market Leadership |
| **Provider Notice Date:** | |
| **Original Effective Date:** | N/A |
| **Annual Approval Date:** | 10/2022 |
| **Last Revision Date:** | 10/08/2021 |
| **Products:** | Medicaid |
| **Application:** | TBD |
| **Page Number(s):** | 1-8 |

## Disclaimer

Highmark Health Options medical policy is intended to serve only as a general reference resource regarding coverage for the services described. This policy does not constitute medical advice and is not intended to govern or otherwise influence medical decisions.

### POLICY STATEMENT

An Electroencephalogram (EEG) is a recording of the electrical current potentials spontaneously from nerve cells in the brain onto the skull. Variations in wave characteristics correlate with neurological conditions and are used to diagnose conditions.

### DEFINITIONS

**Highmark Health Options (HHO)** – Managed care organization serving vulnerable populations that have complex needs and qualify for Medicaid. Highmark Health Options members include individuals and families with low income, expecting mothers, children, and people with disabilities. Members pay nothing to very little for their health coverage. Highmark Health Options currently serves Delaware Medicaid: Delaware Healthy Children Program (DHCP) and Diamond State Health Plan and Health Plan Plus members.

### POLICY POSITION

Transmission of the EEG by internet or disc may be considered medically necessary when the closest medical facilities are located in remote areas which lack trained EEG interpreters or if a trained EEG interpreter is unavailable for individuals with the following indications:

- Altered consciousness, such as stuporous, semi-comatose, or comatose states; or
- Atypical seizure variants in individuals experiencing bizarre, distressing symptoms as seen with "spike and wave stupor" or other forms of seizure disorders; or
- Head injury, where a subdural hematoma may be identified; or
- Differentiation of complicated migraine with epilepsy-like symptoms (e.g., auras, alterations in level of consciousness) from true seizure disorders.

Transmission of the EEG by internet or disc not meeting the criteria as indicated in this policy is considered not medically necessary.

The use of transmission of the EEG to determine electrocerebral silence, i.e., brain death, is considered experimental/investigational because the safety and/or effectiveness of this service cannot be established by the available published peer-reviewed literature.

Video EEG (VEEG) monitoring may be considered medically necessary for ANY ONE of the following indications and/or conditions:

- The diagnosis cannot be made by neurological examination, standard EEG studies or ambulatory EEG monitoring; or
- Routine surface EEG is not diagnostic of a seizure disorder; or
- Seizure activity is observed clinically but not captured by routine EEG; or
- Seizure activity captured on routine EEG does not yield sufficient qualitative **or** quantitative data to determine a treatment regimen; or
- Antiepileptic drug (AED) withdrawal is needed; or
- Non-neurological causes of symptoms (e.g., syncope and cardiac arrhythmias) have been ruled out; or
- To differentiate epileptic events from nonepileptic seizures such as psychogenic seizures; or
- Individual with intractable epilepsy is being evaluated for surgical intervention; or
- Seizure monitoring of a neonate or child is needed to develop or modify treatment; or
- To monitor neonates with hypoxic-ischemic encephalopathy (HIE) who are being treated with therapeutic hypothermia (TH)

VEEG monitoring not meeting the criteria as indicated in this policy is considered not medically necessary.

**Note:** Monitoring may be performed on an outpatient or inpatient basis, depending on the frequency and duration of seizure activity and length of time necessary to collect data. Individuals with frequent (at least three per week) intractable minor seizures and those individuals being evaluated for efficacy of drug treatment can be evaluated on an outpatient basis, in three (3) to 12 hours. Inpatient monitoring is required for individuals such as those with seizures that only occur at night, are infrequent, are clinically severe (such as prolonged complex partial seizures) or are provoked by drug withdrawal.

Ambulatory EEGs may be medically necessary in the following circumstances:

- When used in conjunction with ambulatory electrocardiogram (ECG) recordings for seizures suspected to be of cardiogenic origin; or
- When used in conjunction with electro-oculogram (EOG) and electromyogram (EMG) recordings for suspected seizures of sleep disturbances; or
- When used for quantification of seizures in individuals who experience frequent absence seizures; or
- Diagnosis of a seizure disorder (epilepsy) – individuals who have episodes suggestive of epilepsy when history, examination, and routine EEG do not resolve the diagnostic uncertainties, (inconclusive routine EEG); or
- When used in documenting seizures which are precipitated by naturally occurring cyclic events or environmental stimuli which are not reproducible in the hospital or clinic setting; or
- To monitor neonates with HIE who are being treated with TH.

Ambulatory EEGs not meeting the criteria as indicated in this policy is considered not medically necessary.

Ambulatory EEGs are considered experimental/investigational because the safety and/or effectiveness of this service cannot be established by the available published peer-reviewed literature in the following circumstances:

- For the study of neonates or unattended, uncooperative individuals; or
- In localization of seizure focus/foci when the seizure symptoms and/or other EEG recordings indicate the presence of bilateral foci or rapid generalization; or
- For final evaluation of individuals who are being considered as candidates for resective surgery.

Quantitative electroencephalogram (QEEG) may be considered medically necessary when used as an adjunct to traditional EEG and/or diagnostic evaluation of epilepsy when ANY ONE of the following criteria is met:

- The surface or long-term EEG is inconclusive and additional testing for possible epileptic spikes or seizures is needed; or
- Ambulatory recording is needed to facilitate subsequent visual EEG interpretation; or
- There is need for topographic voltage and dipole analysis in pre-surgical candidates with intractable epilepsy:
  - As continuous monitoring in the operating room for the early detection of an acute intracranial complication during cerebrovascular surgery (i.e., intracranial, carotid endarterectomy); or
  - As monitoring for the detection of nonconvulsive seizures in high risk individuals in the intensive care unit and operating room.

QEEG not meeting the criteria as indicated in this policy is considered not medically necessary.

QEEG-based assessment is considered experimental/investigational when used as a diagnostic aid for attention deficit disorder because the safety and/or effectiveness of this service cannot be established by the available published peer-reviewed literature.

Digital analysis of electroencephalogram (DEEG) is considered not medically necessary as there is no evidence that such additional processing and interpretation has been shown to improve outcomes in individual management.

**Noncovered Services**

The EEG is not useful in the routine evaluation of patients with headache (guideline). This does not exclude the use of EEG to evaluate headache patients with associated symptoms suggesting a seizure disorder, such as atypical migrainous aura or episodic loss of consciousness. Assuming head imaging capabilities are readily available, EEG is not recommended to exclude a structural cause for headache.

The use of EEG testing is typically an outpatient procedure which is only eligible for coverage as an inpatient procedure in special circumstances, including, but not limited to, the presence of a comorbid condition that would require monitoring in a more controlled environment such as the inpatient setting.

**PROCEDURE CODES**

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| 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. |

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| 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 Continous 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. |
| 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 |

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| | 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). |
| 95812 | Electroencephalogram (eeg), Extended Monitoring;41-60 Minutes. |
| 95813 | Electroencephalogram (eeg), Extended Monitoring;61-119 Minutes. |
| 95816 | Electroencephalogram (eeg); Including Recording Awake And Drowsy. |
| 95819 | Electroencephalogram (eeg); Including Recording Awake And Asleep. |
| 95824 | Electroencephalogram (eeg); Cerebral Death Evaluation Only. |
| 95961 | Functional Cortical And Subcortical Mapping By Stimulation And/or Recording Of Electrodes On Brain Surface, Or Of Depth Electrodes, To Provoke Seizures Or Identify Vital Brain Structures; Initial Hour Of Physician Attendance. |
| 95962 | Functional Cortical And Subcortical Mapping By Stimulation And/or Recording Of Electrodes On Brain Surface, Or Of Depth Electrodes, To Provoke Seizures Or Identify Vital Brain Structures; Each Additional Hour Of Physician Attendance (list Separately in Addition To Code For Primary Procedure). |
| 99184 | Initiation Of Selective Head Or Total Body Hypothermia in The Critically Ill Neonate, Includes Appropriate Patient Selection By Review Of Clinical, Imaging And Laboratory Data Confirmation Of Esophageal Temperature Probe Location, Evaluation Of Amplitude Eeg, Supervision Of Controlled Hypothermia And Assessment Of Patient Tolerance Of Cooling. |

**Eligible Diagnosis Codes for 95700, 95705, 95706, 95707, 95708, 95709, 95710, 95711, 95712, 95713, 95714, 95715, 95716, 95717, 95718, 95719, 95720, 95721, 95722, 95723, 95724, 95725, 95726, 95955 and 99184**

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| F10.11 | F11.11 | F11.23 | F11.93 | F13.11 |
| F13.230 | F13.231 | F13.232 | F13.239 | F13.930 |

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| F13.931 | F13.932 | F13.939 | F14.11 | F14.23 |
| F15.11 | F15.23 | F15.93 | F16.11 | F18.11 |
| F19.11 | F19.230 | F19.231 | F19.232 | F19.239 |
| F19.930 | F19.931 | F19.932 | F19.939 | G40.001 |
| G40.009 | G40.011 | G40.019 | G40.101 | G40.109 |
| G40.111 | G40.119 | G40.201 | G40.209 | G40.211 |
| G40.219 | G40.301 | G40.309 | G40.311 | G40.319 |
| G40.401 | G40.409 | G40.11 | G40.419 | G40.501 |
| G40.509 | G40.801 | G40.802 | G40.803 | G40.804 |
| G40.811 | G40.812 | G40.813 | G40.814 | G40.821 |
| G40.822 | G40.823 | G40.824 | G40.89 | G40.901 |
| G40.909 | G40.911 | G40.919 | G40.A01 | G40.A09 |
| G40.A11 | G40.A19 | G40.B01 | G40.B09 | G40.B11 |
| G40.B19 | G43.101 | G43.109 | G43.111 | G43.119 |
| G43.501 | G43.509 | G43.511 | G43.519 | G43.601 |
| G43.609 | G43.611 | G43.619 | P10.0 | P90 |
| R40.0 | R40.1 | R40.2110 | R40.2111 | R40.2112 |
| R40.2113 | R40.2114 | R40.2120 | R40.2121 | R40.2122 |
| R40.2123 | R40.2124 | R40.2130 | R40.2131 | R40.2132 |
| R40.2133 | R40.2134 | R40.2140 | R40.2141 | R40.2142 |
| R40.2143 | R40.2144 | R40.2210 | R40.2211 | R40.2212 |
| R40.2213 | R40.2214 | R40.2220 | R40.2221 | R40.2222 |
| R40.2223 | R40.2224 | R40.2230 | R40.2231 | R40.2232 |
| R40.2233 | R40.2234 | R40.2240 | R40.2241 | R40.2242 |
| R40.2243 | R40.2244 | R40.2250 | R40.2251 | R40.2252 |
| R40.2253 | R40.2254 | R40.2310 | R40.2311 | R40.2312 |
| R40.2313 | R40.2314 | R40.2320 | R40.2321 | R40.2322 |
| R40.2323 | R40.2324 | R40.2330 | R40.2331 | R40.2332 |
| R40.2333 | R40.2334 | R40.2340 | R40.2341 | R40.2342 |
| R40.2343 | R40.2344 | R40.2350 | R40.2351 | R40.2352 |
| R40.2353 | R40.2354 | R40.2360 | R40.2361 | R40.2362 |
| R40.2363 | R40.2364 | R40.2410 | R40.2411 | R40.2412 |
| R40.2413 | R40.2414 | R40.2420 | R40.2421 | R40.2422 |
| R40.2423 | R40.2424 | R40.2430 | R40.2431 | R40.2432 |
| R40.2433 | R40.2434 | R40.2440 | R40.2441 | R40.2442 |
| R40.2443 | R40.2444 | R40.3 | R56.00 | R56.01 |
| R56.1 | R56.9 | R94.01 | S06.5X0A | S06.5X0D |
| S06.5X0S | S06.5X1A | S06.5X1D | S06.5X1S | S06.5X2A |

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| S06.5X2D | S06.5X2S | S06.5X3A | S06.5X3D | S06.5X3S |
| S06.5X4A | S06.5X4D | S06.5X4S | S06.5X5A | S06.5X5D |
| S06.5X5S | S06.5X6A | S06.5X6D | S06.5X6S | S06.5X7A |
| S06.5X8A | S06.5X9A | S06.5X9D | S06.5X9S | |

**Noncovered Diagnosis**

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| F90.0 | F90.1 | F90.2 | F90.8 | F90.9 |

**Noncovered diagnosis codes for procedure codes 95812, 95813, 95816, and 95819**

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|---|---|---|---|---|
| G44.001 | G44.009 | G44.011 | G44.019 | G44.021 |
| G44.029 | G44.031 | G44.039 | G44.041 | G44.049 |
| G44.051 | G44.059 | G44.091 | G44.099 | G44.1 |
| G44.201 | G44.209 | G44.211 | G44.219 | G44.221 |
| G44.229 | G44.301 | G44.309 | G44.311 | G44.319 |
| G44.321 | G44.329 | G44.40 | G44.41 | G44.51 |
| G44.52 | G44.53 | G44.59 | G44.81 | G44.82 |
| G44.83 | G44.84 | G44.85 | G44.86 | G44.89 |
| R51.0 | R51.9 | | | |

**Noncovered Services**

Experimental/investigational (E/I) services are not covered regardless of place of service.

The use of EEG testing is typically an outpatient procedure which is only eligible for coverage as an inpatient procedure in special circumstances, including, but not limited to, the presence of a comorbid condition that would require monitoring in a more controlled environment such as the inpatient setting.

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