Molina Clinical Policy
Video EEG Monitoring
Policy No. 133

Last Approval: 02/12/2025
Next Review Due By: February 2026

DISCLAIMER

This Molina Clinical Policy (MCP) is intended to facilitate the Utilization Management process. Policies are not a supplementation or recommendation for treatment; Providers are solely responsible for the diagnosis, treatment, and clinical recommendations for the Member. It expresses Molina's determination as to whether certain services or supplies are medically necessary, experimental, investigational, or cosmetic for purposes of determining appropriateness of payment. The conclusion that a particular service or supply is medically necessary does not constitute a representation or warranty that this service or supply is covered (e.g., will be paid for by Molina) for a particular Member. The Member's benefit plan determines coverage – each benefit plan defines which services are covered, which are excluded, and which are subject to dollar caps or other limits. Members and their Providers will need to consult the Member's benefit plan to determine if there are any exclusion(s) or other benefit limitations applicable to this service or supply. If there is a discrepancy between this policy and a Member's plan of benefits, the benefits plan will govern. In addition, coverage may be mandated by applicable legal requirements of a State, the Federal government or CMS for Medicare and Medicaid Members. CMS's Coverage Database can be found on the CMS website. The coverage directive(s) and criteria from an existing National Coverage Determination (NCD) or Local Coverage Determination (LCD) will supersede the contents of this MCP and provide the directive for all Medicare members. References included were accurate at the time of policy approval and publication.

OVERVIEW

Electroencephalography (EEG) is the recording of the brain's spontaneous electrical activity over a short period of time (20–40 minutes), as recorded from multiple electrodes placed on the scalp. A routine EEG is not always sufficient, particularly when it is necessary to record a patient while they are having a seizure.

Video electroencephalography (VEEG) monitoring is the synchronous recording and display of EEG patterns and video-recorded clinical behavior. Short recordings of several hours can be performed in an outpatient setting (an EEG laboratory) while recordings of 24-hours or more are generally done in an inpatient hospital setting. Since seizure medicine is often reduced or stopped in order to provoke a seizure, the hospital setting is preferable to ensure patient safety undergoing a seizure. The average hospital length of stay for VEEG monitoring ranges from three to four days. VEEG monitoring is conducted for two main reasons. First, it is useful for diagnostic monitoring when it is not clear from the clinical evaluation and routine EEG whether the patient has epileptic seizures or non-epileptic (psychogenic) events. Second, video EEG helps identify the area of the brain where seizures arise, especially for patients whose seizures are not controlled with antiepileptic medications and for whom surgery for epilepsy is being considered (Hayes 2017; Moeller et al. 2023).

Attended VEEG monitoring is performed in a healthcare facility, either in an inpatient or outpatient setting, with real-time clinical oversight by qualified staff to ensure accurate recording and patient safety. In contrast, ambulatory EEG monitoring is performed without real-time clinical oversight, typically in the home setting, using portable technology for prolonged recording. Some ambulatory monitoring systems have the added capability of simultaneous audio-video recording, electrocardiogram, pulse oximetry, or polysomnography (Moeller et al. 2023).

Regulatory Status
Devices and components associated with EEG are class 1 or class 2 devices that have been granted exempt status from 510(k) Premarket Notification procedures (FDA 2024).

COVERAGE POLICY

This policy addresses Attended Video EEG Monitoring in a Healthcare Facility. For Ambulatory EEG Monitoring not performed in a Healthcare Facility (with or without video), refer to MCG

Attended video electroencephalography (VEEG) monitoring in a Healthcare Facility may be **considered medically necessary** when ONE of the following criteria are met:

1. Pre-surgical evaluation for epilepsy surgery or intracranial electrode placement to localize seizure focus in Members with documented medically refractory seizures

2. Anticonvulsant medication withdrawal, adjustment, or provocation measures being used where a Member is at risk for requiring immediate medical intervention or inpatient management

3. Documented refractory seizure disorder, as evidenced by ALL the following:
   a. Recurrent refractory seizures despite treatment with ≥ 2 anticonvulsant medications
   b. No current seizure provoking medications

4. Differentiating epileptic seizures from non-epileptic events when ALL the following apply:
   a. Symptoms atypical for epileptic seizures or lack definitive seizure features
   b. Routine EEG results are non-specific or inconclusive
   c. Diagnostic uncertainty remains after clinical evaluation and laboratory testing
   d. No sudden cessation of heavy alcohol use within 48 hours of seizure activity
   e. No intoxication due to abuse of drugs within 48 hours of seizure activity

5. Epilepsy type is unclear or poorly characterized, and identification of a specific seizure type is necessary to select an appropriate treatment

VEEG Setting Determination: Inpatient vs. Outpatient

1. **Outpatient** monitoring is preferred when safe and appropriate. Length of stay is generally less than 48 hours and no longer than 72 hours for observation

2. **Inpatient** may be authorized* when ANY of the following apply *in addition to meeting one of the medical necessity criteria outlined above*:
   a. Outpatient monitoring has failed to capture the necessary event and prolonged monitoring beyond 72 hours is required
   b. Documentation supporting Member's clinical presentation or condition is unsafe for outpatient monitoring

*NOTE: For inpatient video electroencephalography (VEEG) monitoring please use appropriate criteria for inpatient reviews that may include but is not limited to MCG or other nationally recognized criteria.

DOCUMENTATION REQUIREMENTS. Molina Healthcare reserves the right to require that additional documentation be made available as part of its coverage determination; quality improvement; and fraud; waste and abuse prevention processes. Documentation required may include, but is not limited to, patient records, test results and credentials of the provider ordering or performing a drug or service. Molina Healthcare may deny reimbursement or take additional appropriate action if the documentation provided does not support the initial determination that the drugs or services were medically necessary, not investigational, or experimental, and otherwise within the scope of benefits afforded to the member, and/or the documentation demonstrates a pattern of billing or other practice that is inappropriate or excessive.

SUMMARY OF MEDICAL EVIDENCE

Systematic Reviews and Meta-Analyses

Kobulashvili et al (2018) performed a systematic review and meta-analysis to evaluate the diagnostic and prognostic utility of noninvasive video-electroencephalographic (VEEG) long-term monitoring (LTM) in presurgical evaluation for epilepsy surgery candidates. The review systematically analyzed data from 94 studies, with six prospective studies and the majority being retrospective and case series, for a total of 3,541 patients. The subgroup analyses focused on lesional and extra-lesional temporal lobe epilepsy (TLE) and extratemporal lobe epilepsy (ETLE) cases. Pooled sensitivity and specificity of LTM for identifying the epileptogenic zone were 70% (95% CL = 0.60-0.80) and 40% (95% CL = 0.27-0.54), respectively, with sensitivity notably higher in lesional TLE patients at 85% compared to 47% in lesional ETLE cases. Specificity remained low in both subgroups (19% in TLE and 35% in ETLE). Seizure freedom rates were significantly associated with LTM concordance; 74% of lesional TLE patients achieved seizure freedom when LTM findings were localizing and concordant with the surgical resection site, while lesional ETLE patients showed a 61% seizure freedom rate under similar conditions. The study notes considerable heterogeneity across included research, attributable to varies study designs, methodologies, and incomplete reporting of technical details, such as the duration of monitoring and the use of additional electrodes. These inconsistencies contribute to significant bias potential, as indicated by QUADAS-2 and GRADE assessments, which downgraded the overall quality of evidence to "very low." Additionally, the review highlights limitations of LTM as a standalone diagnostic modality, especially for non-lesional or extratemporal cases, where further invasive studies are often necessary for accurate localization of the epileptogenic zone. Adverse events associated with LTM were mentioned but not extensively detailed, though they are acknowledged as critical for decision-making in clinical settings. The findings suggest that LTM has higher diagnostic accuracy and clinical utility in lesional TLE patients, where the outcomes are generally favorable when

concordance is achieved. However, the authors stress that the diagnostic performance of LTM cannot be interpreted in isolation, as other presurgical workups contribute to surgical decision-making and postoperative outcomes.

Non-Randomized Studies, Retrospective Reviews, and Other Evidence

Klein et al. (2021) performed a retrospective review using an anonymized database of a national in-home EEG provider with ambulatory VEEG recordings, with a total of 3644 unique, completed assessments, including raw data analysis by neurologists. Studies were categorized into three age cohorts: pediatrics (n = 941), adult (n = 2020), and geriatric (n = 683). Additional characterization of the cohorts was broken down by assessment yield and time to first typical clinical event; subsequent typical events over the duration of recording were also included. Over 97% of first events were observed in 72 hours among all age cohorts; over 95% of the mean number of subsequent events were also observed. Among children, the time to first event was significantly earlier than those in the adult and geriatric cohorts, with 98% of first events and 93% of the mean number of subsequent events observed in 48 hours. The review demonstrated that among all age cohorts, extended recordings may increase the capturing of events. Ideal duration to capture events among children is 48 hours and between 48-72 hours among adult and geriatric patients.

Cho et al. (2019) performed a retrospective study to evaluate the diagnostic yield and clinical utility of non-invasive long-term VEEG monitoring. A total of 1,335 cases were reviewed, with 1,025 included after excluding 147 intracranial recordings and 163 cases with incomplete records. The mean duration of VEEG was 2.3 ± 1.6 days. Of these cases, VEEG confirmed epilepsy in 763 patients by detecting epileptic seizures or interictal epileptiform discharges (IEDs), with a sensitivity and specificity of 95.0% and 99.6%, respectively. Additionally, 99 cases were identified as psychogenic non-epileptic seizures (PNES), 36 as status epilepticus, and 34 with generalized or focal slow activity but no epileptiform discharges. Normal VEEG findings occurred in 170 cases (16.6%). The study highlights that while the proportion of epilepsy diagnoses from VEEG decreased over the study period (77.2% to 61.4%), the rate of normal VEEGs increased (4.1% to 24.1%), reflecting the broadening clinical utility of VEEG beyond epilepsy to evaluate conditions like syncope (e.g., orthostatic hypotension and paroxysmal and orthostatic tachycardia syndrome), sleep disorders, movement disorders, and migraine. VEEG findings facilitated significant diagnoses, including syncope (68 cases), sleep disorders (11 cases) and movement disorders (15 cases), and it provided critical data for presurgical evaluations (40.4%), seizure classifications (23.6%), and differential diagnoses of paroxysmal events (36.0%). Despite its high diagnostic value, 119 cases did not yield definitive findings, including 29 patients with epilepsy but normal VEEG. Limitations of the study include its retrospective design, potential selection bias, and unblinded interpretations. The authors concluded that VEEG remains a gold standard tool with a diagnostic yield of 83.4% for epilepsy and 88.4% for overall clinical utility.

Syed et al. (2019) performed a retrospective cohort study on the outcome of in-home diagnostic ambulatory VEEG monitoring. Patients included a nationwide cohort that were studied during one calendar year. Results were compared with outcomes of inpatient adult and pediatric VEEG monitoring performed at two academic epilepsy centers during the same timeframe. Ambulatory VEEG monitoring outcome data was obtained from an independent ambulatory-EEG testing facility. Inpatient VEEG monitoring data also included a 4-bed adult epilepsy center and an 8-bed pediatric epilepsy center. When equated to ambulatory VEEG monitoring, inpatient VEEG monitoring captured more confirmed representative events in both adult and pediatric samples.

According to Tatum et al. (2018), long-term VEEG can document the association between the paroxysmal semiology and the EEG; this includes synchronized signals from multiple generators (e.g., EEG, electrocardiogram, and electromyography). VEEG is beneficial to explain the differential diagnosis in patients with spells, to classify types of seizure and quantify frequency, and to characterize the electroclinical manifestations during a presurgical evaluation. Summary statements from the International Federation of Clinical Neurophysiology guidelines include the following:

1. High risk of recurrence after initial seizure is evidenced by the presence of interictal epileptiform discharges in a standard EEG. In addition, there is a high risk of seizure relapse following anti-seizure drugs taper in patients with controlled epilepsy.
2. When interictal epileptiform discharges are present in a recording, EEG can help classify the seizure type (focal or generalized).
3. A definitive diagnosis is provided with VEEG monitoring when a seizure is recorded. VEEG is also beneficial for epilepsy surgery evaluation.
4. Continuous EEG monitoring can be used in addition to diagnosing and quantifying seizures, particularly in patients who are critically ill.

National and Specialty Organizations

The **National Institute for Healthcare and Clinical Excellence (NICE)** (2022) guideline on *Epilepsies in children, young people and adults*, notes that when routine and sleep-deprived EEGs are inconclusive, further assessment, such as VEEG, may be indicated for diagnostic clarity.

The **American Clinical Neurophysiology Society** (2008) Guidelines for Long-Term Monitoring for Epilepsy provide recommendations for using simultaneous EEG and clinical behavior recording to evaluate patients with suspected or known epileptic seizure disorders. Long-term monitoring is particularly valuable for differentiating epileptic seizures from non-epileptic conditions (e.g., psychogenic seizures, syncope), identifying seizure types and localizing seizure origins, especially for pre-surgical evaluations, and for documenting seizure frequency, response to treatment, and interictal discharges. The guidelines emphasize the importance of VEEG correlation for accurate diagnosis and characterization of ictal and interictal events. In situations where EEG and clinical uncertainty persist, long-term VEEG (e.g., continuous or ambulatory) provides a robust approach for monitoring extended periods, particularly in refractory epilepsy cases. Technical standards cover electrode placement, recording methods, data storage, and artifact management, with recommendations for qualified personnel to oversee long-term monitoring to ensure safety, accuracy, and clinical utility.

According to Rivello et al. (2006), The **American Academy of Neurology** and the **Child Neurology Society** developed evidence-based guidelines on the diagnostic assessment of children with status epilepticus (SE). The guidelines state that EEG may be considered in children presenting with SE to determine if abnormalities are focal or generalized, guide further testing, aid in identifying nonconvulsive status epilepticus, and differentiate pseudo-status epilepticus (Level C evidence). Further research is needed to determine the optimal setting, timing, and prognostic implications of EEG in this population.

CODING & BILLING INFORMATION

CPT (Current Procedural Terminology)

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
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
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
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)
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)
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)
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)

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)

CODING DISCLAIMER. Codes listed in this policy are for reference purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement. Listing of a service or device code in this policy does not guarantee coverage. Coverage is determined by the benefit document. Molina adheres to Current Procedural Terminology (CPT®), a registered trademark of the American Medical Association (AMA). All CPT codes and descriptions are copyrighted by the AMA; this information is included for informational purposes only. Providers and facilities are expected to utilize industry standard coding practices for all submissions. When improper billing and coding is not followed, Molina has the right to reject/deny the claim and recover claim payment(s). Due to changing industry practices, Molina reserves the right to revise this policy as needed.

APPROVAL HISTORY

02/12/2025	Policy revised. Added criteria for cases when identifying specific epilepsy type is necessary for appropriate treatment selection. Added provocation measures as a risk for immediate medical intervention or inpatient management in addition to medication withdrawal or adjustment. Reworded other coverage criteria for clarity. IRO reviewed on December 23, 2024, by a practicing physician board certified in Neurology.
02/14/2024	Policy reviewed. Title changed to Video EEG Monitoring. Removed coverage criteria for ambulatory EEG, deferred to MCG. Clarified criteria for use of VEEG for differentiating between epileptic vs non-epileptic seizure, added criteria for anti-epileptic medication withdrawal or adjustment. Updated references. IRO Peer Reviewed on February 7, 2024, by a practicing physician board certified in Epilepsy.
02/08/2023	Policy reviewed, no changes to criteria.
02/09/2022	Policy reviewed, added 8 indications from CMS LCD (2020) and Continuation of Therapy items (MCG, 2021); updated Summary of Medical Evidence section and references.
02/08/2021	Policy reviewed, criteria changed to allow video EEG as necessary in the home setting, updated guidelines, and references.
09/16/2020	Policy reviewed, no changes to clinical criteria, updated references.
09/18/2019	Policy reviewed, no changes to clinical criteria, updated references.
07/10/2018	Policy reviewed, clinical criteria changed according to AMR review – under Ambulatory EEG criteria, removed item for outpatient sleep study with EEG monitoring; defined “non-epileptic events”.
03/08/2018	Policy reviewed, no changes to clinical criteria.
06/22/2017	Policy reviewed, no changes to clinical criteria.
09/19/2016	Policy reviewed, changed video EEG criteria to require treatment with > 2 anticonvulsant medications (vs. requiring therapeutic levels of anticonvulsant medications) and changed outpatient video EEG length of stay to up to 72 hours (vs. 48 hours).
05/03/2016	Policy reviewed, added statement under Exclusions section regarding outpatient video EEG monitoring (NOT medically necessary in the home setting due to insufficient evidence).
03/01/2016	Policy reviewed, updated criteria for ambulatory and video EEG – routine EEG, history and physical exam, and outpatient sleep study with EEG monitoring are inconclusive or non-diagnostic (see criteria for ambulatory EEG criteria) and MRI for video EEG required in cases of a suspected non-epileptic seizure when history and lab results are either normal or non-diagnostic for etiology of symptoms or findings (MRI not required prior to epilepsy surgery or in a case of known seizure disorder).

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