

Clinical Policy: Digital EEG Spike Analysis

Reference Number: LA.CP.MP.105

Date of Last Revision: 04/25

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Description

Electroencephalography (EEG) is a significant component of epilepsy diagnosis, along with a thorough medical history and neurological workup.¹ Most EEGs today are performed on digital machines, which record data and automatically detect spikes that may indicate seizures.² For the purpose of this policy, digital EEG spike analysis, also known as 3D dipole localization or dipole source imaging, refers to additional analysis of digitally recorded EEG spikes by a technician and a physician.

Policy/Criteria

- I. It is the policy of Louisiana Healthcare Connections that digital electroencephalography (EEG) spike analysis, including topographic voltage and/or dipole analysis, is **medically necessary** for the pre-surgical evaluation of members/enrollees with intractable epilepsy, in conjunction with video EEG long-term monitoring.
- II. It is the policy of Louisiana Healthcare Connections that digital EEG spike analysis is **not medically necessary** for any other indication.

Background

According to the American Clinical Neurophysiology Society's (ACNS) Guidelines for Long Term Monitoring of Epilepsy, digital electroencephalography (EEG) is the industry standard.² Ambulatory EEG, video EEG, and routine EEG all use digital technology and usually incorporate automatic spike detection. These types of EEG analyses are not the same as digital EEG spike (3D dipole localization) analysis. Digital EEG spike analysis assessment and billing should not be used for cases when the EEG was only recorded on digital equipment. Digital EEG spike analysis assessment is reserved specifically for times when substantial additional digital analysis was medically necessary and was performed, such as 3D dipole localization. In these specific circumstances, this would entail an additional hour's work by the technician to process the data from the digital EEG, as well as an extra 20 to 30 minutes of physician time to review the technician's work and review the data produced. This type of analysis is most commonly performed at specialty centers that involve epilepsy surgery programs.³

It is important to note that the ACNS specifically states that ambulatory EEG is not appropriate for detailed characterization of EEG features as is required in presurgical evaluation.² 3D spike dipole source analysis, or digital EEG spike analysis, has been shown to be concordant with other modes of presurgical evaluation of epilepsy, including a thorough neurological workup with video EEG, magnetic resonance imaging (MRI), and multiple other imaging and neuropsychological tests; electrocorticography; and magnetoencephalography.⁴ Studies have demonstrated "that dipole source models can be successfully employed to detect the epileptogenic foci of interictal epileptiform discharges."^{4(p320)} Therefore, digital EEG spike analysis is recommended for the presurgical evaluation of intractable epilepsy patients.⁴

Coding Implications

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CPT®* Codes	Procedure codes that support medical necessity criteria
95957	Digital analysis of electroencephalogram (EEG) (eg, for epileptic spike analysis) *when performed in conjunction with any of the following:
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, two to 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, 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)

ICD-10-CM Diagnosis Codes that Support Coverage Criteria

+ indicates a code requiring an additional character

ICD-10-CM Code	Diagnosis codes that support medical necessity criteria
G40.011	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus

ICD-10-CM Code	Diagnosis codes that support medical necessity criteria
G40.019	Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, 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
G40.211	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
G40.311	Generalized idiopathic epilepsy and epileptic syndromes, intractable, with status epilepticus
G40.319	Generalized idiopathic epilepsy and epileptic syndromes, 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
G40.803	Other epilepsy, intractable, with status epilepticus
G40.804	Other epilepsy, intractable, without status epilepticus
G40.813	Lennox-Gastaut syndrome, intractable, with status epilepticus
G40.814	Lennox-Gastaut syndrome, intractable, without status epilepticus
G40.823	Epileptic spasms, intractable, with status epilepticus
G40.824	Epileptic spasms, intractable, without status epilepticus
G40.911	Epilepsy, unspecified, intractable, with status epilepticus
G40.919	Epilepsy, unspecified, intractable, without status epilepticus
G40.A11	Absence epileptic syndrome, intractable, with status epilepticus
G40.A19	Absence epileptic syndrome, intractable, without status epilepticus
G40.B11	Juvenile myoclonic epilepsy, intractable, with status epilepticus
G40.B19	Juvenile myoclonic epilepsy, intractable without status epilepticus
G40.C11	Lafora progressive myoclonus epilepsy, intractable, with status epilepticus
G40.C19	Lafora progressive myoclonus epilepsy, intractable, without status epilepticus

Reviews, Revisions, and Approvals	Revision Date	Approval Date	Effective Date
Converted corporate to local policy.	08/15/20		
Changed “review date” in the header to “date of last revision” and “date” in the revision log header to “revision date.”	10/22	1/14/23	

Reviews, Revisions, and Approvals	Revision Date	Approval Date	Effective Date
References reviewed, updated, and reformatted. Reviewed by specialist. Added “and may not support medical necessity” to coding implications.			
Annual review. Minor rewording in Criteria I. Background updated with no impact on criteria. References reviewed and updated. Reviewed by external specialist.	10/23	1/5/24	2/7/24
Added new for 2024 ICD-10 codes G40.C11 and G40.C19 to ICD-10 coding table.	02/24	4/26/24	5/26/24
Annual review. Background updated with no impact on criteria. References reviewed and updated.	4/25	6/24/25	7/24/25

References

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Important reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional

organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. LHCC makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved.

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This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members/enrollees. This clinical policy is not intended to recommend treatment for members/enrollees. Members/enrollees should consult with their treating physician in connection with diagnosis and treatment decisions.

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