Priority Health

MEDICAL POLICY
No. 91627-R0

MAGNETOENCEPHALOGRAPHY (MEG)

Effective Date: February 24, 2021	**Review Dates: 2/21, 2/22, 2/23, 2/24, 2/25**
Date Of Origin: February 10, 2021	**Status: Current**

I. POLICY/CRITERIA

A. Indications

Priority Health considers magnetoencephalography (MEG) medically necessary for the following indications when the specified criteria are met.

1. Presurgical/pre-operative evaluation for drug-resistant, intractable epilepsy when standard techniques (such as magnetic resonance imaging, MRI, and electroencephalography, EEG) have not provided satisfactory locations of epileptic lesions.
2. Pre-operative localization of eloquent cortex, and/or determination of the laterality of language function, prior the surgical resection of brain tumors, vascular malformations, and other indications requiring brain resection.

B. Priority Health considers MEG experimental and/or investigational for all other indications.

Note: There is no relevant literature supporting MEG as initial imaging for new onset seizure disorder with or without history of trauma, known seizure disorder (with or without change in semiology, or with history of tumor) unless as defined above.

II. MEDICAL NECESSITY REVIEW

Prior authorization for certain drug, services, and procedures may or may not be required. In cases where prior authorization is required, providers will submit a request demonstrating that a drug, service, or procedure is medically necessary. For more information, please refer to the Priority Health Provider Manual.

III. APPLICATION TO PRODUCTS

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

- **HMO/EPO:** ***This policy applies to insured HMO/EPO plans.***
- **POS:** ***This policy applies to insured POS plans.***

- **PPO:** ***This policy applies to insured PPO plans. Consult individual plan documents as state mandated benefits may apply. If there is a conflict between this policy and a plan document, the provisions of the plan document will govern.***
- **ASO:** ***For self-funded plans, consult individual plan documents. If there is a conflict between this policy and a self-funded plan document, the provisions of the plan document will govern.***
- **INDIVIDUAL:** ***For individual policies, consult the individual insurance policy. If there is a conflict between this medical policy and the individual insurance policy document, the provisions of the individual insurance policy will govern.***
- **MEDICARE:** ***Coverage is determined by the Centers for Medicare and Medicaid Services (CMS) and/or the Evidence of Coverage (EOC); if a coverage determination has not been adopted by CMS, this policy applies.***
- **MEDICAID/HEALTHY MICHIGAN PLAN:** ***For Medicaid/Healthy Michigan Plan members, this policy will apply. Coverage is based on medical necessity criteria being met and the appropriate code(s) from the coding section of this policy being included on the Michigan Medicaid Fee Schedule located at: http://www.michigan.gov/mdch/0,1607,7-132-2945_42542_42543_42546_42551-159815--,00.html. If there is a discrepancy between this policy and the Michigan Medicaid Provider Manual located at: http://www.michigan.gov/mdch/0,1607,7-132-2945_5100-87572--,00.html, the Michigan Medicaid Provider Manual will govern. If there is a discrepancy or lack of guidance in the Michigan Medicaid Provider Manual, the Priority Health contract with Michigan Medicaid will govern. For Medical Supplies/DME/Prosthetics and Orthotics, please refer to the Michigan Medicaid Fee Schedule to verify coverage.***

IV. BACKGROUND

Magnetoencephalography (MEG) is a non-invasive medical test that uses a **superconducting quantum interference device (SQUID)** and a computer to measure neuromagnetic activity within the brain. MEG detects, records and analyzes the magnetic fields produced by electrical currents in the brain. The distribution of these magnetic fields is superimposed with an anatomical image of the brain to help identify the source of activity in the brain. A MEG study is a direct measure of brain function and an advanced method of recording and evaluating the brain while it is actively functioning.

MEG is used to identify or map:

- the functional areas of the brain, including centers of sensory, motor, language and memory activities
- the precise location of the source of epileptic seizures.

MEG studies are performed with a specialized helmet that is lined with magnetic sensors, which uses specialized software to detect and record the activity of neurons as the patient lies still or completes a series of tasks, such as listening to a series of words or looking at pictures. An analysis of the recording, which collects both normal and abnormal brain signals, helps determine where specific activities in the brain originate. A number of different MEG systems have been approved

for marketing in the United States. MEG systems are classified as Class II devices and require 510(k) clearance. A number of devices have been cleared for marketing under Product Codes OLY (magnetoencephalography) and OLX (source localization software).

MEG is intended to noninvasively measure signals produced by electrically active tissue of the brain. These signals are recorded by a computerized data acquisition system, displayed, and may then be interpreted by trained physicians to help localize these active areas. The locations may then be correlated with anatomical information of the brain. MEG is routinely used to identify the locations of visual, auditory, somatosensory, and motor cortex in the brain when used in conjunction with evoked response averaging devices. MEG is also used to non-invasively locate regions of epileptic activity within the brain. The localization information provided by MEG may be used, in conjunction with other diagnostic data, in neurosurgical planning.

No CMS National Coverage Determination (NCD) on MEG was identified.

Established clinical applications:

- Epilepsy
- Pre-operative evaluation (including language function)

The recording and localization of interictal epileptic discharges and ictal events, especially for pre-surgical planning, has become the most important clinical application of MEG. MEG can confirm a patient's suitability for epilepsy surgery. The spatial resolution of MEG and the ability to separate nearby sources are critical advantages of MEG in the refinement of the epileptogenic zone. MEG has proven helpful for selecting good candidates for epilepsy surgery when structural brain MRI is negative and for localizing the seizure onset zone, and thus planning the surgical resection in patients with focal cortical dysplasia.

V. CODING INFORMATION

CPT Codes

95965 Magnetoencephalography (MEG), recording and analysis; for spontaneous brain magnetic activity (e.g., epileptic cerebral cortex localization)
95966 Magnetoencephalography (MEG), recording and analysis; for evoked magnetic fields, single modality (e.g., sensory, motor, language, or visual cortex localization)
95967 Magnetoencephalography (MEG), recording and analysis; for evoked magnetic fields, each additional modality (e.g., sensory, motor, language, or visual cortex localization) (List separately in addition to code for primary procedure)

Revenue Codes

860 Magnetoencephalography (MEG) – General
861 Magnetoencephalography (MEG) - MEG

VI. REFERENCES

1. American Clinical Magnetoencephalography (MEG) Society.
2. Hayes, Inc. Magnetoencephalography for Presurgical Planning in Children Undergoing Epilepsy Surgery. Evidence Analysis Research Brief. February 21, 2020.
3. Hari R, Baillet S, Barnes G, et al. IFCN-endorsed practical guidelines for clinical magnetoencephalography (MEG). Clin Neurophysiol. 2018;129(8):1720-1747. doi:10.1016/j.clinph.2018.03.042
4. Hayes, Inc. Magnetoencephalography And Magnetic Source Imaging Of The Brain. Health Technology Assessment, September 15, 2008 (Archived October 15, 2013).
5. UpToDate. Neuroimaging in the evaluation of seizures and epilepsy.
6. UpToDate. Surgical treatment of epilepsy in adults.
7. UpToDate. Complex regional pain syndrome in children.
8. UpToDate. Overview of chronic widespread (centralized) pain in the rheumatic diseases.