### Coverage Summary

#### Neurologic Services and Procedures

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Approved by:</strong> UnitedHealthcare Medicare Benefit Interpretation Committee</td>
<td><strong>Last Review Date:</strong> 01/17/2017</td>
<td></td>
</tr>
</tbody>
</table>

**Related Medicare Advantage Policy Guidelines:**

- Ambulatory EEG Monitoring (NCD 160.22)
- Electroencephalographic Monitoring During Surgical Procedures Involving the Cerebral Vasculature (NCD 160.8)
- Induced Lesions of Nerve Tracts (NCD 160.1)
- Invasive Intracranial Pressure Monitoring (NCD 160.14)
- Multiple Electroconvulsive Therapy (MECT) (NCD 160.25)
- Sensory Nerve Conduction Threshold Tests (sNCTs) (NCD 160.23)
- Stereotaxic Depth Electrode Implantation (NCD 160.5)
- Vagus Nerve Stimulation (VNS) (NCD 160.18)

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This information is being distributed to you for personal reference. The information belongs to UnitedHealthcare and unauthorized copying, use, and distribution are prohibited. This information is intended to serve only as a general reference resource 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. Each benefit plan contains its own specific provisions for coverage, limitations, and exclusions as stated in the Member’s Evidence of Coverage (EOC)/Summary of Benefits (SB). If there is a discrepancy between this policy and the member’s EOC/SB, the member’s EOC/SB provision will govern. The information contained in this document is believed to be current as of the date noted.

The benefit information in this Coverage Summary is based on existing national coverage policy, however, Local Coverage Determinations (LCDs) may exist and compliance with these policies is required where applicable.

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**Coverage Statement:** Diagnostic neurologic services and procedures are covered when Medicare
Guidelines/Notes:

1. Surgically induced nerve track lesions to control pain are covered only when criteria are met. See the NCD for Induced Lesions of Nerve Tracts (160.1) (Accessed January 5, 2017)

2. Multiple-seizure electroconvulsive therapy is not covered. See the NCD for Multiple-Seizure Electroconvulsive therapy (160.25). (Accessed January 5, 2017)

   Note: Multiple-seizure electroconvulsive therapy has not been verified by scientifically controlled studies. In addition, studies have demonstrated an increased risk of adverse effects with multiple seizures. Accordingly, MECT cannot be considered reasonable and necessary and is not covered by the Medicare program.

3. Invasive intracranial pressure monitoring is covered. See the NCD for Invasive Intracranial Pressure Monitoring (160.14) (Accessed January 5, 2017)


   Note: Vagus nerve stimulation is safe and effective treatment for patients with medically refractory partial onset seizures, for whom surgery is not recommended or for whom surgery has failed. Vagus nerve stimulation is not covered for patients with other types of seizure disorders which are medically refractory and for whom surgery is not recommended or for whom surgery has failed.

   Replacement of the battery-powered programmable pulse generator for VNS for the treatment of resistant depression: Effective May 4, 2007, CMS issued the NCD for Vagus Nerve Stimulation for Treatment of Seizures (160.18), specifically stating noncoverage for VNS for the treatment of resistant depression. Prior to this date, VNS for this indication was covered, therefore, replacement of the battery-powered generator for these cases, if needed, will be covered. However, in accordance with the above referenced NCD 160.18, battery replacements for VNS for intractable depression acquired or provided after May 4, 2007 will not be covered. (Accessed January 5, 2017)

5. Stereotaxic depth electrode implantation is covered prior to surgical treatment of focal epilepsy for patients who are unresponsive to anticonvulsant medications has been found both safe and effective for diagnosing resectable seizure foci that may go undetected by conventional scalp EEGs. See the NCD for Stereotaxic Depth Electrode Implantation (160.5). (Accessed January 5, 2017)

6. Electroencephalographic (EEG) monitoring is covered during surgical procedures involving the cerebral vasculature. See the NCD for EEG for Monitoring During Surgical Procedures Involving the Cerebral Vasculature (160.8). (Accessed January 5, 2017)

7. Ambulatory or 24 hour EEG (paper or digital interpretation) is covered for patients in whom a seizure diathesis is suspected but not defined by history, physical or resting EEG. Ambulatory EEG can be utilized in the differential diagnosis of syncope and transient ischemic attacks if not elucidated by conventional studies. See NCD for Ambulatory EEG Monitoring (160.22) (Accessed January 5, 2017)

Notes:

- Ambulatory EEG should always be preceded by an awake and asleep resting EEG. Digital EEG interpretation EEG techniques are considered established in
a. **Epilepsy**: For screening for possible epileptic spikes or seizures in long-term EEG monitoring recording to facilitate subsequent expert visual EEG interpretation

b. **Operating Room (OR) and Intensive Care Unit (ICU) monitoring**: For continuous EEG monitoring by frequency-trending to detect early, acute intracranial complications in the OR or ICU, and for screening for possible epileptic seizures (convulsive or non convulsive) in high-risk ICU patients


8. **Intraoperative Neurophysiological Monitoring**

   See the [Coverage Summary for Neurophysiological Studies](#).

9. **Sensory Nerve Conduction Threshold Tests (sNCTs)**

   All uses of sNCTs to diagnose sensory neuropathies or radiculopathies are not covered. See the [NCD for Sensory Nerve Conduction Threshold Tests (sNCTs) (160.23)](#). (Accessed January 5, 2017)

10. **Electromyography (EMG) and Nerve Conduction Studies**

    - Medicare does not have a National Coverage Determination for Electromyography (EMG) and Nerve Conduction Studies.
    - Local Coverage Determinations (LCDs) / Local Coverage Articles (LCAs) exist for all 50 states. Compliance with these policies is required where applicable. For state-specific LCDs, see the [LCD Availability Grid (Attachment A)](#).
    - **Committee approval date**: January 17, 2017
    - Accessed August 31, 2017

11. **Magnetoencephalography and Magnetic Source Imaging (MEG/MSI)**

    - Medicare does not have a National Coverage Determination (NCD) for Magnetoencephalography and Magnetic Source Imaging (MEG/MSI).
    - Local Coverage Determinations (LCDs) do not exist at this time.
    - For coverage guidelines, see the UnitedHealthcare Medical Policy for Magnetoencephalography and Magnetic Source Imaging for Specific Neurological Applications. (IMPORTANT NOTE: After searching the Medicare Coverage Database, if no state LCD or Local Article is found, then use the above referenced policy.)
    - **Committee approval date**: January 17, 2017
    - Accessed January 10, 2017

12. **Plagiocephaly and Craniosynostosis Treatment**

    - Medicare does not have a National Coverage Determination (NCD) for Plagiocephaly and Craniosynostosis Treatment.
    - Local Coverage Determinations (LCDs) do not exist at this time.
    - For coverage guidelines, see the UnitedHealthcare Medical Policy for Plagiocephaly and Craniosynostosis Treatment. (IMPORTANT NOTE: After searching the Medicare Coverage Database, if no state LCD or Local Article is found, then use the above referenced policy.)
    - **Committee approval date**: January 17, 2017
    - Accessed January 5, 2017
II. DEFINITIONS

**Electroencephalographic (EEG) Monitoring:** Technique used in the assessment of gross cerebral blood flow during general anesthesia. EEG monitoring as an indirect measure of cerebral perfusion requires the expertise of an electroencephalographer, a neurologist trained in EEG, or an advanced EEG technician for its proper interpretation. [NCD for EEG for Monitoring During Surgical Procedures Involving the Cerebral Vasculature (160.8).](accessed January 5, 2017)

**Sensory Nerve Conduction Test:** A sNCTs is a psychophysical assessment of both central and peripheral nerve functions. It measures the detection threshold of accurately calibrated sensory stimuli. This procedure is intended to evaluate and quantify function in both large and small caliber fibers for the purpose of detecting neurologic disease. Sensory perception and threshold detection are dependent on the integrity of both the peripheral sensory apparatus and peripheral-central sensory pathways. In theory, an abnormality detected by this procedure may signal dysfunction anywhere in the sensory pathway from the receptors, the sensory tracts, the primary sensory cortex, to the association cortex.

This procedure is different and distinct from assessment of nerve conduction velocity, amplitude and latency. It is also different from short-latency somatosensory evoked potentials. [NCD for Sensory Nerve Conduction Threshold Tests (sNCTs) (160.23).](accessed January 5, 2017)

**Stereotaxic Depth Electrode Implantation:** The procedure employs thin wire electrodes which are implanted in the brain of the focal epileptic patient for electroencephalograph (EEG) monitoring. By taking several readings during seizure activity, the location of the epileptic focus may be found, so that better informed decisions can be made regarding the surgical treatment of persons with intractable seizures. [NCD for Stereotaxic Depth Electrode Implantation (160.5).](accessed January 5, 2017)

III. REFERENCES

IV. REVISION HISTORY

01/17/2017  Annual review; no updates

01/19/2016  Annual review with the following update:
Updated reference link(s) of the applicable LCDs to reflect the new condensed LCD link(s).

03/24/2015  Annual review with the following updates:
- Guideline #7 – Removed reference to NCD for EEG Monitoring During Open-Heart Surgery. (160.9) (retired).
- Guideline #11 - Electromyography (EMG) and Nerve Conduction Studies –
  - Added reference language of “Local Coverage Articles” and “for all 50 states”.
  - Deleted statement “For states with no LCDs, refer to the Coverage Summaries Guidelines below; based on the Highmark LCD for Nerve Conduction Studies (NCS)/Electromyography (EMG) (L29547)”
- Definitions: Added appropriate CMS reference to all definitions.
02/18/2014  Annual review; no updates.
12/17/2013  Guideline #4 (Vagus Nerve Stimulation)
• Added language to indicate that replacement of the battery-powered generator for VNS for the treatment of resistant depression provided prior to May 4, 2007, if needed, will be covered
02/19/2013  Annual review; no updates
02/27/2012  Annual review; no updates
08/29/2011  • Moved the guidelines for Sensory Nerve Conduction Threshold Tests (sNCTs) from Guidelines #9 to Guidelines #10. CS also updated to include
• Guidelines #11 Electromyography (EMG) and Nerve Conduction Studies
02/21/2011  Annual review; no updates
08/27/2010  Updated the link of the NCD for Vagus Nerve Stimulation for Treatment of Seizures (160.18)

V. ATTACHMENT(S)

Attachment A - LCD Availability Grid

Electromyography (EMG) and Nerve Conduction Studies

CMS website accessed August 31, 2017

IMPORTANT NOTE: Use the applicable LCD based on member’s residence/place of service AND type of service.

<table>
<thead>
<tr>
<th>LCD ID</th>
<th>LCD Title</th>
<th>Contractor Type</th>
<th>Contractor</th>
<th>States</th>
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<td>L34859</td>
<td>Nerve Conduction Studies and Electromyography</td>
<td>A and B MAC</td>
<td>First Coast Service Options, Inc.</td>
<td>FL, PR, VI</td>
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<td>L35048</td>
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<td>Palmetto GBA</td>
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<td>L35098</td>
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<td>CT, IL, MA, ME, MN, NH, NY, RI, VT, WI</td>
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<td>L35897</td>
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<td>CA, Northern, CA, Southern, AS, GU, HI, MP, NV</td>
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<td>L36526</td>
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<td>L34594</td>
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<td>Wisconsin Physicians Service Insurance Corporation</td>
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<td>L34265</td>
<td>Medicine: Nerve Conduction Studies (NCS) and Electromyography (EMG)</td>
<td>A and B MAC</td>
<td>Cahaba Government Benefit Administrators®, LLC</td>
<td>AL, GA, TN</td>
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End of Attachment A