Bright HealthCare™

Medical Policy

Intraoperative Neuromuscular Monitoring	
MEDICAL POLICY NUMBER	MED_Clin_Ops-022
POLICY OWNER	A. Bartley Bryt, MD, Chief Medical Officer
ORIGINAL EFFECTIVE DATE	11/19/2020
CURRENT VERSION NUMBER	3
CURRENT VERSION EFFECTIVE DATE	12/6/2021
APPLICABLE PRODUCT AND MARKET	*Individual Family Plan*: All *Small Group*: All

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PURPOSE

The purpose of this policy is to establish the clinical review criteria that support the determination of medical necessity for intraoperative neuromuscular monitoring used in conjunction with surgical procedures.

POLICY

Criteria for Intraoperative Neuromuscular Monitoring

Provider Requirements

Intraoperative neuromuscular monitoring may be considered medically necessary when **ALL** of the following conditions are met:

1. Intraoperative neuromuscular monitoring must be performed by a:
    a. Licensed physician trained in clinical neurophysiology.
    b. Trained technologist who is practicing within the scope of their license/certification and is working under the direct supervision of a physician trained in neurophysiology.
    c. Provider meeting the qualifications in (a) and (b) above who Is not the operating surgeon or anesthesiologist.

2. Data from the intraoperative neuromuscular monitoring is interpreted by a licensed physician trained in clinical neurophysiology, other than the operating surgeon or anesthesiologist, who is either:
    a. Physically in attendance in the operating suite, or
    b. Present by means of real-time remote connectivity for all monitoring and is immediately available to interpret the recording and communicate immediately with the surgical team.

Clinical Situations

Intraoperative neuromuscular monitoring may be considered medically necessary in **ANY** of the following clinical situations:

1. Spinal surgery for the correction of spinal deformity (e.g., scoliosis).
2. Cochlear implant surgery.
3. Monitoring of facial nerve function during surgery (e.g., Microvascular decompression of the facial nerve for hemifacial spasm, acoustic neuroma, congenital auricular lesions, or cranial base lesions).
4. Brachial plexus surgery.
5. Cauda equina tumor.
6. Surgery for cholesteatoma, including mastoidotomy or mastoidectomy.
7. Surgical excision of neuromas of the facial nerve.
8. Location of the hypoglossal nerve during implantation of an Inspire hypoglossal nerve stimulator.
9. Nerve root tumor (e.g., neurofibroma or schwannoma)
10. Vestibular neurectomy for Meniere's disease.
11. Vestibular schwannoma surgery.
12. Tethered cord release.
13. Surgical excision of neuromas of the:
    a. Abducens nerve
    b. Glossopharyngeal nerve
    c. Hypoglossal nerve
    d. Oculomotor nerve
    e. Recurrent laryngeal nerve
    f. Spinal accessory
    g. Superior laryngeal nerve
    h. Trochlear nerve

14. High-risk thyroid or parathyroid surgery, including:
    a. Total thyroidectomy
    b. Repeat thyroid or parathyroid surgery
    c. Surgery for cancer
    d. Thyrotoxicosis
    e. Retrosternal or giant goiter
    f. Thyroiditis

Exclusions and Limitations

The use of intraoperative neuromuscular monitoring for the following clinical procedures is considered **NOT** medically necessary (unless the procedure is for spinal deformity) as there is insufficient medical literature to support the effectiveness and appropriateness of its use**:**

1. Cervical Spinal Surgery
    a. *Exception*: There may be complex and high risk anterior cervical spine surgeries where individual medical necessity consideration for coverage would be indicated for the following increased risk situations such as:
        i. revision of anterior cervical discectomy and fusion,
        ii. revision surgery through a scarred surgical field,
        iii. time consuming anterior cervical discectomy and fusion for tumor
2. Thoracic Spinal Surgery
3. Lumbar Spinal Surgery

BACKGROUND

Electrophysiologic monitoring, or neuromonitoring, is used during surgery to assess the functional integrity of the brain, brainstem, spinal cord, or peripheral and cranial nerves. The goal of monitoring is to alert the surgeon and anesthesiologist to impending injury in order to allow modification of management in time to prevent permanent damage. In some cases, neuromonitoring is used to map areas of the nervous system in order to guide procedural management.

Neuromonitoring can include the recording of spontaneous activity (e.g., electroencephalogram and spontaneous electromyogram) or evoked response to stimulus (e.g., somatosensory evoked potentials, motor evoked potentials, triggered electromyography, and brainstem auditory evoked potentials). Frequently, multiple techniques are used together in order to increase the utility of monitoring and to overcome limitations of individual techniques.

Neuromonitoring has become common during many surgical procedures, often replacing intraoperative wake-up testing. Neuromonitoring is performed by a specialized team with specific expertise in the techniques that are used. In most instances, no "standard of care"

exists for intraoperative neuromonitoring, and techniques are chosen by the surgeon and monitoring team in order to assess or protect structures at risk.

For spine surgery, both motor evoked potentials (MEPs) and somatosensory evoked potentials (SSEP)s are used to monitor spinal cord function to increase sensitivity. Motor and sensory tracts are anatomically distinct and have different vascular supply in areas of the cortex, brainstem, and spinal cord. MEPs are monitored periodically throughout surgery and more frequently during critical surgical maneuvers. As with the other evoked response techniques, the amplitude and latency of the response are monitored; a decrease in amplitude is a more common sign of impending neurologic compromise than an increase in latency. Several criteria have been proposed for identifying significant intraoperative change; complete loss of signal is always considered significant. MEPs are more effective than SSEPs for detecting motor injury since changes in the MEPs precede SSEP changes, usually allowing time to react in order to prevent neurologic damage.

Electromyography (EMG) is used to monitor spontaneous muscle activity or evoked compound muscle action potentials in muscles innervated by cranial or spinal nerve roots that are at risk during surgery. Triggered EMG is used during surgery in order to monitor nerve integrity. These techniques are commonly used during posterior fossa and spine surgery, during cortical and brainstem motor mapping, and during anterior neck procedures (e.g., thyroidectomy).

SSEPs are among the most commonly employed evoked potential monitoring modalities in the operating room. SSEPs are often used to monitor the sensory pathway in spine and intracranial surgeries. MEPs monitor the corticospinal tract. MEPs are monitored along with SSEPs during intracranial and spine surgery.

MEPs can detect ischemia in an area of the brain that is not covered by SSEPs. Changes in MEPs occur earlier than SSEP changes, which may allow more rapid correction of the cause and possible prevention of neurologic injuries.[1] Multiple published studies and evidence reviews have not determined a consistent and clear benefit of IONM in routine spinal surgeries.

DEFINITIONS - *N/A*

CODING

Applicable CPT® codes: within the setting of Intra-operative monitoring:

95925	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper limbs
95926	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in lower limbs

[1] UpToDate (accessed 10/16/20)

95927	Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in the trunk or head
95928	Central motor evoked potential study (transcranial motor stimulation); upper limbs
95929	Central motor evoked potential study (transcranial motor stimulation); lower limbs
95930	Visual evoked potential (VEP) testing central nervous system, checkerboard or flash
95937	(neuromuscular junction testing (repetitive stimulation, paired stimuli), each nerve, any 1 method)
95940	Continuous intraoperative neurophysiology monitoring in the operating room, one on one monitoring requiring personal attendance, each 15 minutes (List separately in addition to code for primary procedure)
95941	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby) or for monitoring of more than one case while in the operating room, per hour (List separately in addition to code for primary procedure)
95943	Simultaneous, independent, quantitative measures of both parasympathetic function and sympathetic function, based on time-frequency analysis of heart rate variability concurrent with time-frequency analysis of continuous respiratory activity, with mean heart rate and blood pressure measures, during rest, paced (deep) breathing, Valsalva maneuvers, and head-up postural change

HCPCS Code:

G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure)

EVIDENCE-BASED REFERENCES

1. UpToDate**:** Neuromonitoring in surgery and anesthesia; Authors: Antoun Koht, MD, Tod B Sloan, MD, MBA, PhD, Laura B Hemmer, MD Literature review current through: Sep 2020. | This topic last updated: Oct 06, 2020.
2. Hayes Directory Mar 31, 2016 Multimodal Intraoperative Monitoring (MIOM) During Cervical Spinal Surgery
3. Hayes Evidence Analysis Research Brief Mar 24, 2020 Intraoperative Neurophysiological Monitoring During Thoracic Spine Surgery
4. Hayes Evidence Analysis Research Brief Feb 04, 2020 Intraoperative Neurophysiological Monitoring During Lumbar Spine Surgery
5. Hayes Directory Feb 18, 2016 Multimodality Intraoperative Monitoring (MIOM) During Corrective Surgery for Spinal Deformities
6. https://www.acns.org/practice/guidelines, accessed 11/1/2020
7. Evidence-Based Guideline Update: Intraoperative Spinal Monitoring with Somatosensory and Transcranial Electrical Motor Evoked Potential, (J Clin Neurophysiol 2012;29: 101–108)
8. Ajiboye RM, Zoller SD, Sharma A, et al. Intraoperative neuromonitoring for anterior cervical spine surgery: What is the evidence? Spine (Phila Pa 1976). Mar 15 2017;42(6):385-393. PMID 27390917

POLICY HISTORY

Original Effective Date	November 19, 2020
Revised Date	*Version History:* V2: December 20, 2020 – Small Group added as applicable product V3: December 6, 2021 – Annual review, template updates made

DISCLAIMER

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Approved by Utilization Management Committee

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