Neurophysiological monitoring

Background

Neurophysiological monitoring refers to any measure used to assess the functional integrity of the peripheral or central nervous system either in the operating room (OR), intensive care unit, or other acute care setting. Clinical neurophysiologists, health care professionals with a master’s degree or a PhD, are the experts on the electrophysiological function of the nervous system. They monitor and are able to identify new neurologic impairment, identify or separate nervous system structures, and demonstrate which tracts or nerves are still functional.

In the OR, clinical neurophysiologists work with surgeons to protect patients from neurological damage during surgery. Their intraoperative neurophysiological monitoring can provide reassurance to the surgeon that no identifiable complication has been detected. This allows the surgeon to proceed further and provide a more thorough or careful surgical intervention than would have been provided in the absence of monitoring.

There are two credentialing boards, the American Board of Neurophysiologic Monitoring (ABNM) and the American Board of Registration of EEG (electroencephalography) and EP Technologists (ABRET), that now offer certification examinations for neurophysiological intraoperative monitoring personnel. Both exams identify appropriate experience and an adequate knowledge base for two distinct levels of intraoperative monitoring practitioners.

ABNM certification is designed for the clinical neurophysiologist whose primary responsibility is to provide interpretation of the monitoring data with appropriate clinical correlations. ABRET’s CNIM certification is intended for monitoring personnel involved with the technical aspects of monitoring, including patient preparation, equipment set-up, data acquisition and trending, troubleshooting, and providing technical description of the data to the surgeon.

There are also MDs (neurophysiologists or neurologists) who are qualified in neurophysiological monitoring. Commonly these MD practitioners do not go into the operating room but instead supervise the technical level employees and interpret the data after the case.

Positions of societies and academies

ASNM

The American Society of Neurophysiological Monitoring (ASNM) serves as the leading organization for the field of interventional neurophysiological assessment and monitoring. Its mission is to provide quality neurophysiological monitoring to benefit patient outcomes and to promote the following objectives:
• Foster the growth and stature of neurophysiological monitoring as a profession

• Represent and advocate within the medical community on behalf of members

• Provide a forum for education and dissemination of knowledge in the field

• Develop quality standards for practice and training

• Promote the highest standards of neurophysiological monitoring through research

• Build partnerships and coalitions with allied professionals

In regard to credentialing and privileging, the ASNM recommends that clinical neurophysiologists should be certified by the ABNM.

Positions of other interested parties

**ABNM**

The ABNM grants certification in neurological monitoring. To apply for certification, candidates must meet the following eligibility requirements:

• A minimum of an earned master’s degree or equivalent and at least three years’ experience in neurophysiologic monitoring.

• Primary responsibility for supervising/monitoring a minimum of 300 surgical procedures. A case log of the 300 surgical procedures must accompany the application.

• Two letters from surgeons attesting to the case experience and time components.

• Successful completion of the Certification Examination in Neurophysiologic Monitoring Part I–Written.

Candidates successfully completing Part I–Written will be designated board eligible for a period of three years during which time they must take and successfully complete Part II–Oral in order to be certified.

**JCAHO**

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has no formal position on the delineation of
privileges in neurophysiological monitoring. However, its 2002 *Comprehensive Accreditation Manual for Hospitals* states (MS.5.4) that “professional criteria specified in medical staff bylaws must be uniformly applied to all applicants,” and that these criteria “constitute the basis for granting initial or continuing medical staff membership and for granting initial, renewed, or revised clinical privileges.”

The JCAHO further requires (MS.5.4.3) that “the professional criteria at least pertain to evidence of current licensure, relevant training or experience, current competence, and ability to perform the privileges requested.” It also requires (MS.5.4.3.1) that “the hospital verifies information about the applicant’s licensure, specific training, experience, and current competence provided by the applicant with information from the primary source(s) whenever feasible.”

Although the JCAHO does not require hospitals to use any specific method in delineating clinical privileges, it does require (MS.5.15) that “the clinical privileges are hospital specific and based on the individual’s demonstrated current competence.” It further states (MS.5.15.1–MS.5.15.1.3) that “privileges are related to an individual’s documented experience in categories of treatment areas or procedures; the results of treatment; and the conclusions drawn from organization performance-improvement activities when available.”

The JCAHO also says (MS.5.15.2) “board certification is an excellent benchmark and is considered when delineating clinical privileges.”

Since a hospital must subject each member of its medical staff to periodic review, the JCAHO states (MS.5.4.4) that “decisions on reappointments or on revocation, revision, or renewal of clinical privileges must consider criteria that are directly related to quality of care,” and (MS.5.6) “appointment or reappointment to the medical staff and the initial granting and renewal or revision of clinical privileges are also based on information regarding the applicant’s competence.”

It further states (MS.5.12–MS.5.12.3) that “appraisal for reappointment to the medical staff or renewal or revision of clinical privileges is based on ongoing monitoring of information concerning the individual’s professional performance, judgment, and clinical or technical skills.”
CRC draft criteria

The following draft criteria are intended to serve solely as a starting point for the development of an institution’s policy regarding this practice area.

**Minimum threshold criteria for requesting core privileges in neurophysiological monitoring**

**Basic education and minimum formal training:** Applicants’ qualifications should include the following:

- Master’s degree
- Completed courses in neuroanatomy, neurophysiology, neurochemistry, and electrophysiology
- Experience in neurophysiological monitoring, which included monitoring surgical procedures under the supervision of an experienced practitioner

**Required previous experience:** Applicants must be able to demonstrate that they had the primary responsibility for supervising/monitoring at least 100 surgical procedures during the past 12 months.

*Note: A letter of reference should come from the director of the applicant’s neurophysiological monitoring training program. In addition, letters of reference should come from two surgeons attesting to the applicant’s competence.*

Core privileges in neurophysiology

Core privileges in neurophysiology involve monitoring neurological tests, which include but are not limited to the following recordings:

- EMG (electromyography)
- EEG
- Somatosensory evoked potential
- Cortical mapping

Reappointment

Reappointment should be based on unbiased, objective results of care according to the organization’s existing quality assurance mechanisms.

Applicants must be able to demonstrate that they have maintained competence by showing evidence that they had the primary responsibility for supervising/monitoring at least 100
surgical procedures annually over the reappointment cycle.

In addition, continuing education related to neurophysiological monitoring should be required.

For more information

For more information regarding this practice area, contact:

American Board of Neurophysiological Monitoring
PO Box 60487
Chicago, IL  60660-0487
Telephone: 800/479-7979
Fax: 800/479-7989
Web site: www.ptcny.com/clients/ABNM/ABNM.html

American Society of Neurophysiological Monitoring
PO Box 60487
Chicago, IL  60660-0487
Telephone: 800/479-7979
Fax: 800/479-7989
Web site: www.asnm.org

Joint Commission on Accreditation of Healthcare Organizations
One Renaissance Boulevard
Oakbrook Terrace, IL 60181
Telephone: 630/792-5000
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Web site: www.jcaho.org
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Privilege request form
Neurophysiological monitoring

In order to be eligible to request clinical privileges in neurophysiological monitoring, an applicant must meet the following minimum threshold criteria:

- **Basic education and minimal formal training:** Applicants’ qualifications should include the following:
  - Master’s degree
  - Completed courses in neuroanatomy, neurophysiology, neurochemistry, and electrophysiology
  - Experience in neurophysiological monitoring, which included monitoring surgical procedures under the supervision of an experienced practitioner

- **Required previous experience:** Applicants must be able to demonstrate that they had the primary responsibility for supervising/monitoring at least 100 surgical procedures during the past 12 months.

- **References:** A letter of reference should come from the director of the applicant’s neurophysiological monitoring training program. In addition, letters of reference should come from two surgeons attesting to the applicant’s competence.

- **Core privileges:** Core privileges in neurophysiology involve monitoring neurological tests, which include but are not limited to the following recordings:
  - EMG
  - EEG
  - Somatosensory evoked potential
  - Cortical mapping

- **Reappointment:** Reappointment should be based on unbiased, objective results of care according to the organization’s existing quality assurance mechanisms.

  Applicants must be able to demonstrate that they have maintained competence by showing evidence that they had the primary responsibility for supervising/monitoring at least 100 surgical procedures annually over the reappointment cycle.

  In addition, continuing education related to neurophysiological monitoring should be required.

I understand that by making this request I am bound by the applicable bylaws or policies of the hospital, and hereby stipulate that I meet the minimum threshold criteria for this request.

Applicant’s signature: ________________________________________________________________

Typed or printed name: _______________________________________________________________

Date: __________________________________________________________________________