Intraoperative Neuromonitoring (IONM)

What is Intraoperative Neuromonitoring (IONM)?
Intraoperative Neurophysiological Monitoring (IONM) uses state-of-the-art equipment to assess and monitor the many functions of the spinal cord and nerves during surgery. The role of IONM is to provide the surgeon with instant feedback and warning before permanent nerve injury occurs. This increases patient safety and improves outcomes during and after surgeries.

Why is Intraoperative Neuromonitoring (IONM) so important?
IONM has become the gold standard of patient care for spine, brain, vascular, and ENT surgeries. The number of IONM cases has greatly increased. This is a result of advances in IONM systems, improved monitoring procedures, and the surgeons’ increased awareness about the benefits of IONM. IONM offers major benefits to the patient, surgeon, and hospital. IONM provides instant feedback on how the neural systems being monitored are working. This helps with critical decision-making and improves patient outcomes.

When is IONM used?
Your surgeon will decide if IONM is right for your surgery. Typically, IONM is used during the following:

- Spinal Procedures
  - Spinal cord cases—cervical, thoracic and lumbar
  - Spinal instrumentation procedures—total disc replacement, discectomy/laminectomy, corpectomy and decompressions
  - Spinal Embolizations—spinal tumors, AVM’s and dural AV fistulas

- Neurosurgical Procedures
  - Craniotomies placing cranial nerves or cortical blood flow at risk, microvascular decompressions and spinal cord tumors

- Vascular Procedures
  - Carotid endarterectomy and aortic aneurysm

- Peripheral Nerve Procedures
  - Acetabular (hip) fractures and hip arthroplasty revisions
  - Brachial plexus repair
  - Peripheral nerve repair

- Otolaryngologic (Head/Neck) Procedures
  - Thyroidectomies and parotid tumor resections
What happens before my surgery?
Before you enter the operating room (OR), you will be in a “pre-operative” area. During that time, you will see the IONM technologist. He/she will explain what and how they are monitoring your surgery. In some cases, the technologist may perform some pre-operative hook-up or baseline recordings before you enter the OR. This will be explained at the time you meet the technologist. Please feel free to ask any questions at that time.

What happens during my surgery?
In the operating room, electrodes are placed on limbs that could be affected by the surgery. Once the patient is asleep, small needle electrodes may be placed in the scalp. This would be over the area of the brain where the impulse from the limb is received. Other electrodes are placed in the muscle groups that correspond to the area where the surgeons will be working. Baseline recordings are taken before surgery begins and are repeated throughout the procedure. A major change in the wave alerts the surgeon and technical clinician that the nerve in the area could be at risk of damage. The surgeon can then take the proper action to prevent permanent damage. Surgeries progress with more confidence. Less time is spent identifying neural structures since alerts will be given to the surgeon during surgery.

Is there a risk of infection?
Risk for infection is low. The skin is disinfected before needles are placed (needles are sterile and disposed of after single use). You may have mild soreness after surgery where the needles were placed.

UW Hospital and Clinics is working along with Neuromonitoring Services of America, Inc. to provide quality Intraoperative Neuromonitoring for all of our patients. You may receive a medical bill from Neuromonitoring Services of America, Inc. for the interpretation of the services provided. If you have any questions about services or billing Neuromonitoring Services of America, Inc. provides, you may contact them at the numbers listed below.

General Questions
1-866-226-8576, Ext 603
Michael Haubert (VP, General Operations)

Billing Questions
1-866-226-8576, Ext 606
Janet Macias (Billing Manager)

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 3/2015 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#7753.