

State-of-the-Art Intraoperative Neurophysiologic Monitoring Symposium: Present and Future



Friday, June 13, 2014

Swedish Education and Conference Center
Swedish Medical Center/Cherry Hill
500 17th Avenue
Seattle, WA 98122

Needs Statement

Surgeons, technicians and advanced-care practitioners have expressed a need for a comprehensive update on neurophysiologic monitoring and how it applies to various surgical procedures. According to the American Association of Neurological Surgeons, surgeon training in the technical and interpretive aspects of nerve monitoring has been lacking, and this inadequate knowledge may lead to misinterpretations and the inability to troubleshoot problems during surgical procedures.

In spine surgery, intraoperative neurophysiological monitoring (IONM) is frequently used to lower the risk of spinal operation by providing real-time monitoring of neural structures at risk of damage. Intraoperative facial nerve monitoring helps locate the nerve that is displaced by a tumor, detect nerve injury during dissection and provide a way for assessing nerve function immediately after dissection is complete. This can aid in the avoidance of permanent nerve damage. Complications related to subarachnoid hemorrhage include hemorrhage-related hyperglycemia, cerebral salt-wasting syndromes and cerebral infarction. The incidence of perioperative seizures related to vascular surgery is unknown, but reported rates from observational studies range from 4% to 42%. Intraoperative rupture occurs at a rate of 7% to 35% depending on the specifics of the aneurysm. Some of these complications may be avoided by using monitoring technologies and more studies on this need to be explored. When undergoing neuromodulation, patients are sometimes awake during the procedure to provide feedback for the surgeon. IONM can further assist in this process and provides supplemental real-time feedback for patients who cannot be awake during neuromodulative procedures.

A structured curriculum and protocol is recommended in both the technical and interpretive aspects of neuromonitoring for all personnel involved in IONM. The Swedish Neuroscience Institute currently has a detailed policy and procedure manual for conducting IONM during surgical procedures. Sharing information about how this manual was developed will help attendees develop a similar program in their practices. Expert faculty from the perspectives of spine surgery, skull base surgery, vascular surgery and neuromodulation will inform participants on how best to utilize IONM with their patients.

Intended Audience

This conference is intended for intraoperative monitoring professionals, neurophysiologists, neurosurgeons, neurologists, orthopedists, ENT surgeons, anesthesiologists, audiologists, nurses, surgical technicians and advanced practitioners and allied health professionals involved in interventional intraoperative neurophysiologic monitoring during surgical procedures in the Pacific Northwest.

Course Description

This symposium will provide comprehensive updates for neurophysiologic monitoring professionals, advanced practitioners, surgeons, anesthesiologists and technicians who require intraoperative neuromonitoring during procedures. Experts from the perspectives of neurological surgery, vascular surgery, epilepsy, neurophysiology and neurological restoration will present about four overarching areas where neurophysiologic monitoring is highly beneficial to patient outcomes: spine, skull base and cranial nerves, vascular surgery, and mapping/neuromodulation.

Planning Committee

Mark Balvin, CNIM, MBA
Colleen Douville, BA, RVT
Ryder P. Gwinn, M.D.
Laura Jacob, MEd, *Education Program Administrator*
Stephanie Jordan, REEG, EPT, CNIM, CLTM
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Jehuda P. Sepkuty, M.D., *Course Chair*
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Jordan Steed, PA
Andrew Xu, M.D., Ph.D., CNIM

Accreditation with Commendation

Swedish Medical Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

Swedish Medical Center designates this live activity for a maximum of 9.0 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

ASET Continuing Education Units

The educational program, State of the Art IONM: Present and Future, to be held 06/13/2014 in Seattle, WA has been approved as follows: 9.0 ASET-CEUs.

Acknowledgments

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Agenda

- 7 a.m. **Registration and Continental Breakfast**
7:30 a.m. **Welcome and Introductions**
Jehuda P. Sepkuty, M.D. and Arthur M. Lam, M.D.

Session I: The Complex Spine

- 7:45 a.m. **The Neurosurgeon's Detailed Look at Surgical Anatomy of the Spine & How it Relates to Intraoperative Monitoring**
Rod J. Oskouian Jr, M.D.
8:10 a.m. **Defining the Efficacy of Spinal Cord Neuro-monitoring: Challenges and Available Data**
Robert E. Minahan, M.D.
8:50 a.m. **Investigating the Clinical Utility of Lumbar Spine Monitoring**
Gregory A. Kinney, Ph.D.
9:20 a.m. **Expert Faculty Panel:** Rod J. Oskouian Jr., M.D.; Robert E. Minahan, M.D.; and Gregory A. Kinney, Ph.D.
Moderated by: Jehuda P. Sepkuty, M.D.
9:40 a.m. **Break**

Session II: Skull Base and Cranial Nerves

- 9:55 a.m. **The Neurosurgeon's Detailed Look at Surgical Anatomy of the Base of the Skull and How it Relates to Intraoperative Monitoring**
Johnny B. Delashaw, M.D.
10:20 a.m. **Intraoperative Neurophysiologic Monitoring of Cranial Nerves**
Leslie H. Lee, M.D.
11:10 a.m. **Expert Faculty Panel:** Johnny B. Delashaw, M.D. and Leslie H. Lee, M.D.
Moderated by: Robert E. Minahan
11:30 a.m. **Lunch:** *Pick up Food and Move to Conference Room for Break-out Sessions*
11:40 a.m. **Lunch Session 1: Comprehensive Policy & Procedure Manual Development**
Mark Balvin, CNIM, MBA
Noon **Lunch Session 2: AMA & CPT Coding and Regulation for IONM: Pending Changes, Updates & Opportunities, Accreditation and Politics**
Rebecca Clark-Bash, R EEG\EP T, CNIM, CLTM, F ASNM

Session III: Vascular Surgery

- 12:40 p.m. **The Neurosurgeon's Detailed Look at Vascular System and How it Relates to Intraoperative Monitoring**
David W. Newell, M.D.
1:05 p.m. **Monitoring of Vascular Cases: CEA, Intracranial Aneurysm and Endovascular Procedures**
Leslie H. Lee, M.D.
1:35 p.m. **TCD in the Operating Room and Beyond**
Colleen Douville, BA, RVT
1:55 p.m. **Multimodality EP monitoring: Anesthetic Recommendations: Protocols, Contraindications, and Challenges**
Arthur M. Lam, M.D., FRCP
2:30 p.m. **Expert Faculty Panel:** Colleen Douville, BA, RVT; Arthur M. Lam, M.D., FRCP; Leslie H. Lee, M.D.; David W. Newell, M.D.
Moderated by: Gregory A. Kinney, Ph.D.
2:55 p.m. **Break**

Session IV: Mapping and Neuromodulation

- 3:10 p.m. **The Neurosurgeon's Detailed Look at Neuro-modulation: Update, Anatomy, Techniques, Devices and The Role for Intraoperative Monitoring**
Ryder P. Gwinn, M.D.
3:35 p.m. **Mapping and Monitoring From Cortex and Spinal Cord**
Jehuda P. Sepkuty, M.D.
4 p.m. **Neurophysiologic Markers of Cortical Motor Speech Related Ares, Recorded From Laryngeal Muscles**
Vedran Deletis, M.D., Ph.D.
4:25 p.m. **Keynote: Recent Progress in Electrographic and Brain-Computer Interfacing**
Rajesh P. N. Rao, Ph.D.
5:05 p.m. **Expert Faculty Panel:** Vedran Deletis, M.D., Ph.D., Ryder P. Gwinn, M.D., Rajesh P. N. Rao, Ph.D., Jehuda P. Sepkuty, M.D.
Moderated by: Leslie H. Lee, M.D.
5:30 p.m. **Adjourn**

For Further Information:

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Course Objectives

At the conclusion of this symposium, the participant will provide better patient care through an increased ability to:

- Review the surgical anatomy of the spine from a neuro-surgical perspective and discuss how it relates to intraoperative monitoring
- Review the available literature assessing the utility of spinal cord monitoring, outline limitations in the ability to perform randomized controlled studies and appreciate the likely cost savings related to spine cord monitoring
- Describe the current state of lumbar spine monitoring and discuss the future direction and goals in lumbar spine monitoring and research
- Discuss and answer questions related to spine surgery and how it can benefit from intraoperative neuro-physiologic monitoring
- Review complex anatomy, skull base surgery and monitoring in skull base surgery
- Explain the utility of facial nerve monitoring in acoustic neuroma surgeries, recognize the spectrum of surgical cases for which intraoperative neurophysiologic monitoring of multiple cranial nerves may be of benefit and apply principles of cranial nerve monitoring to mapping of the brainstem
- Discuss and answer questions related to skull base surgery and how it relates to intraoperative neuro-physiologic monitoring
- Illustrate the process of standardization in preparation for digitizing an IONM policy and procedure manual, demonstrate the process of digitization in expediting access to IONM operations modalities procedures, and respective science and describe the creation of the systematized organization of digital format for research-based best common practice
- Discuss vascular anatomy and neuroanatomy and how they relate to monitoring
- Recognize the critical importance of multimodality intraoperative neurophysiologic monitoring across a diversity of vascular cases and distinguish characteristic patterns of regional IONM changes that may correlate with compromise of distinct vascular territories
- Review diagnostic features and criteria for spectral Doppler waveform, describe intra- and post-operative flow changes during CEA interpretation and recognize microembolic signals in Doppler waveforms
- Describe the effects of commonly used anesthetic agents on different evoked potential (EP) modalities, review the usual anesthetic requirements of different surgical procedures where EP is monitored and outline the most efficient team approach to enhance patient safety by optimizing EP signals
- Discuss and answer questions related to vascular surgery and the potential benefits of IONM
- Review the possible applications of intraoperative monitoring (IOM) for patients undergoing neuro-modulation procedures, describe how IOM can augment or replace physiological feedback from awake patients and identify appropriate types of IOM to use for specific neuromodulation procedures.
- Outline basics of intra operating mapping of motor tracts from the cortex to the spinal cord, apply cortical functional mapping in operating room (OR), discuss continuous monitoring after mapping in OR
- Describe the methodology for eliciting and recording corticobulbar response from laryngeal muscles, identify specific neurophysiologic markers recorded in laryngeal muscle after Transcranial Electrical Stimulation (TES) of Transcranial Magnetic Stimulation (TMS) of eloquent cortices and discuss the neurophysiologic background of speech
- Explain current state-of-the-art in brain-computer interfaces and neural prosthetics and list the challenges in translation of brain-computer interface research to clinical application
- Discuss and answer questions about how neuro-modulation procedures can be improved with the use of neurophysiologic monitoring

Location

Swedish Medical Center/Cherry Hill is located at 500 17th Avenue in Seattle, Washington. The conference will be held in the Swedish Education and Conference Center on the first floor of the James Tower. Parking is available in the garage on 16th Avenue between Cherry and Jefferson at a maximum fee of \$16.50. From I-5 (northbound and southbound), take the James Street exit. Travel east on James Street. James will become Cherry Street. Turn right (south) on 16th Avenue. Turn right into the main garage entrance.

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Faculty

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Registration Information:

Preregistration is required as space is limited. Participants who register by the "Advance Registration" deadline will receive a confirmation postcard after Monday, June 2, 2014. Registrations will only be processed when accompanied by full payment.

Cancellation:

To receive a refund, notice of cancellation must be received no later than **Friday, June 6, 2014**.

If using the registration form, please mail or fax it to:

Continuing Medical Education
Swedish Medical Center
747 Broadway
Seattle, WA 98122
Fax: 206-320-7462

Please note: No registrations are accepted by phone or e-mail.

If you have special needs, please contact the CME office at 206-386-2755.



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EMERGENCY CONTACT NAME AND PHONE NUMBER

SPECIALTY

Registration Fees: Please check one of the following:

	Advance Registration	After June 2
M.D. or D.O.	☐ \$315	☐ \$345
Allied Health Professional	☐ \$160	☐ \$190
Medical Student	☐ No charge	
Resident or Fellow	☐ No charge	

Payment:

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