

# ASNM ANNUAL MEETING

Chicago Downtown Marriott Magnificent Mile Chicago, Illinois May 3-5, 2019

# 1

### **MEETING OBJECTIVES**

Attendees should come away with:

- A clearer understanding of the methodologies and practice of IONM from the neurophysiologist, technologist, anesthesiologist and surgeon perspective.
- 2. A stronger understanding of how data can be used to advance the field of IONM.
- 3. Information about the current research and evidence for IONM.
- 4. How cross-collaboration can strengthen IONM effectiveness.

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### TARGET AUDIENCE

Beginner to advanced IONM practitioners, including technologists, neurophysiologists, physicians, (surgeons, neurologists, anesthesiologists, etc.) and individuals involved in intraoperative neuromonitoring.

PLANNING COMMITTEE

Jay L. Shills, PhD, DABNM, FASNM, FACNS

Laura B. Hemmer, MD

Cayla Marconi, Executive Director, ASNM



# 2019 FALL SYMPOSIUM September 13-15 2019

Hyatt Regency Boston

Boston, Massachusetts

# **CONTINUING EDUCATION**

#### ASNM Continuing Education Credit



ASNM is an ABRET approved provider of continuing education for their IONM related credentials. ABRET is the credentialing board for Electroencephalographic (EEG) Technologists, Evoked Potential (EP) Technologists, and Neurophysiologic Intraoperative Monitoring (CNIM) Technologists, Long Term Monitoring (CLTM) Technologists, and Autonomic Testing Professionals (CAP). Such crediting, however, should not be construed by program participants as endorsement of any type of instruments or supplies mentioned or involved in these presentations. Please be advised that for continuing education hours to apply towards the EEG test, they must be ASET CEUs; however, ASNM CEUs are eligible for the recertification of the EEG credential as well as towards CNIM and EP credentials and recertification.

#### American Academy of Audiology Continuing Education Credit



The American Society of Neurophysiological Monitoring (ASNM) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. ASNM designates this live activity for a maximum of 15.5 AMA PRA Category 1TM Credits. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### ASNM is managed by Affinity Strategies



Photographs taken during the meeting by ASNM staff and contractors will be used in future ASNM marketing materials. Personal cameras, audio recording and video equipment are proibited.





# THURSDAY, MAY 2

4:00p-7:00p	Registration Open 5th Floor
6:00p–8:00p	<b>ABNM Board Prep (additional charge)</b> Jeffrey Balzer, PhD, FASNM, DABNM <i>Miami Room</i>
6:00p-8:30p	<b>CNIM Board Prep (additional charge)</b> James Watt, Jr., CNIM, R.EPT <i>Los Angeles Room</i>

# FRIDAY, MAY 3

7:00a–7:45a	Breakfast with Exhibitors
7:45a–8:00a	Introductions Dr. Laura Hemmer, Dr. Jay Shils, Dr. Jeff Gertsch
8:00a–8:45a	<b>The Future of IONM</b> Dr. Bryan Wilent
8:45a–9:30a	The Functional Anatomy of the Brain Cortex and Its Subcortex Pathway for IONM Dr. Lanjun Guo
9:30a–10:15a	Monitoring for Spine Instrumentation Surgery Dr. Faisal Jahangiri
10:15a–10:45a	Break
10:45a–11:30a	Weighing the Effects of Pathology on IONM: Scales Dr. Jeff Balzer
11:30a–12:15p	<b>The Value of Simulation for IONM</b> Dr. Lawrence Wierzbowski
12:15p–2:00p	Lunch on Your Own
2:00p-2:45p	Neuromonitoring for Functional Neurosurgery Dr. Jay Shills
2:45p-3:30p	Functional Neurosurgery Dr. Joshua Rosenow
3:30p-4:00p	Break
4:00p-5:30p	<b>Economics and IONM Panel</b> Ms. Clare Gale, Dr. Trey Lee, Dr. John Ney, Dr. Anthony Sestokas Moderator – Dr. Gene Balzer
5:30p-8:00p	Cocktail Party

# AGENDA

# SATURDAY, MAY 4

7:00a–7:45a	Breakfast with Exhibitors
7:45a–8:00a	Introductions Dr. Laura Hemmer, Dr. Jay Shils, Dr. Jeff Gertsch
8:00a–8:45a	Anesthesia and Its Impact on IONM Dr. Laura Hemmer
8:45a–9:30a	<b>Minimally Invasive Spine Surgery</b> Dr. Nader Dahdaleh
9:30a–10:15a	<b>Brainstem Reflex Monitoring</b> Dr. Sedat Ulkatan
10:15a–10:45a	Break
10:45a–12:30p	IONM Literature Panel: Key Recent Papers and Experts' Comments Dr. Jeff Balzer, Dr. Robert Holdefer, Dr. John Ney, Dr. Stanley Skinner, Dr. Rich Vogel Moderator — Dr. Tara Stewart
12:30p-2:30p	Business Lunch
2:30p-3:00p	Recent Challenging Cases Dr. Antoun Koht
3:00p-4:00p	<b>Presidential Lecture</b> Dr. Scott Makeig
4:00p-4:30p	Break
4:30p–5:15p	Medical Error Avoidance — Communication in the Operating Room Dr. Stanley Skinner
5:15p–6:00p	Basic Physiology of the Motor System (Focus on D-waves and MEPs) Dr. Vedran Deletis

# SUNDAY, MAY 5

7:30a–8:00a	Breakfast with Exhibitors
8:00a-8:45a	Evidence Based Neuromonitoring Dr. Robert Holdefer
8:45a–10:15a	Medically Interesting Case and Scientific Abstract Presentations Various Presenters
10:15a–10:45a	Break
10:45a–11:30a	Deep Brain Stimulation for the Persistant Vegetative/ Minimally Conscious Patient Dr. Vedran Deletis
11:30a–12:15p	Intracranial Neurovascular Surgery Dr. Matthew Potts
12:15p–12:30p	<b>Closing</b> Dr. Rich Vogel

# ACTIVITIES



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Gene Balzer, PhD, FASNM, FAAA Chief Executive Officer Allied Managed Process, LLC

Jeffrey R. Balzer, PhD, FASNM, DABNM

Associate Professor Neurological Surgery University of Pittsburgh Medical Center

Nader Dahdaleh, MD Assistant Professor of Neurological Surgery and Orthopedic Surgery Northwestern Medical

Larry A. Badler, MBA, LSS-BB President Skybridge Consulting LLC

Vedran Deletis, MD, PhD Associate Professor at Albert Einstein College of Medicine, New York

Clare C. Gale, CNIM, R.EEG/EPT., FASNM, FASET Quality Assurance, Remote Technical Supervisor Comprehensive Neuromonitoring

Lanjun Guo, MD, MSc, D.ABNM, FASNM Surgical Neuromonitoring Service University of California, San Francisco

Laura B. Hemmer, MD Associate Professor Anesthesiology and Neurological Surgery Northwestern University Feinberg School of Medicine

**Robert N. Holdefer, PhD** Associate Professor University of Washington School of Medicine

Faisal Riaz Jahangiri, MD, CNIM, DABNM, FASNM Senior Consultant Neuro Surgery Department of Surgery, Neuroscience Institute Hamad Medical Corporation, Doha, Qatar

Antoun Koht, MD Professor Anesthesiology Neurological Surgery and Neurology Northwestern University

**George R. "Trey" Lee, III, MD** President and Chief Medical Officer Real Time Neuromonitoring Associates Scott Makeig, MD Presidential Speaker Institute for Neural Computation, UCSD

John Ney, MD Neurologist Veterans Affairs Medical Center

Matthew Potts, MD Assistant Professor of Neurological Surgery Northwestern Medicine

#### Joshua Rosenow, MD

Professor of Neurological Surgery, Neurology Ken and Ruth Davee Department and Physical Medicine and Rehabilitation Northwestern Medical

Anthony K. Sestokas, PhD, DABNM, FASNM Chief Clinical Officer ONM SpecialtyCare

Jay L. Shils, PhD, DABNM, FASN, FACNS IONM Director Associate Professor Anesthesiology Rush University Medical Center

**Stanley Skinner, MD, FASNM** Medical Director, Neurophysiology Department Abbott Northwestern Hospital

Tara Stewart, PhD, D.ABNM Co-Founder IONM Life, LLC

Sedat Ulkatan, MD, D.ABNM, CNIM IONM Specialist Mount Sinai West Hospital

**Richard Vogel, PhD, DABNM, FASNM** Neurophysiologst Director, Clinical Services at SafePassage

James A. Watt, Jr., CNIM, R.EPT Vice President Neuromonitoring Services Comprehensive Care Services

Lawrence Wierzbowski, AuD, DABNM, FASNM President Avatrode LLC

W. Bryan Wilent, PhD, DABNM

Vice President Quality and Clinical Performance SpecialtyCare, Inc.

# FACULTY DISCLOSURE STATEMENTS

Gene Balzer, PhD, FASNM, FAAA has disclosed no relevant financial relationships

Jeffrey R. Balzer, PhD, FASNM, DABNM has disclosed no relevant financial relationships

Nader Dahdaleh, MD has disclosed no relevant financial relationships

Vedran Deletis, MD, PhD has disclosed no relevant financial relationships

Clare C. Gale, CNIM, R.EEG/EPT., FASNM, FASET has disclosed no relevant financial relationships

Lanjun Guo, MD, MSc, D.ABNM, FASNM has disclosed no relevant financial relationships

Laura B. Hemmer, MD has disclosed no relevant financial relationships

Robert N. Holdefer, PhD has disclosed no relevant financial relationships

Faisal Riaz Jahangiri, MD, CNIM, DABNM, FASNM has disclosed no relevant financial relationships

Antoun Koht, MD has disclosed no relevant financial relationships

George R. "Trey" Lee, III, MD has disclosed no relevant financial relationships

Scott Makeig, MD has disclosed no relevant financial relationships

John Ney, MD has disclosed no relevant financial relationships Matthew Potts, MD has disclosed no relevant financial relationships

Joshua Rosenow, MD has disclosed no relevant financial relationships

Anthony K. Sestokas, PhD, DABNM, FASNM has disclosed investment and other income from SpecialtyCare and RNP/SpecialtyCare

Jay L. Shils, PhD, DABNM, FASN, FACNS has disclosed income from Elsevier; research income from Medtronic; consultant income from Globus; advisory board income from Engineurix

Stanley Skinner, MD, FASNM has disclosed no relevant financial relationships

Tara Stewart, PhD, D.ABNM has disclosed no relevant financial relationships

Sedat Ulkatan, MD, D.ABNM, CNIM has disclosed no relevant financial relationships

Richard Vogel, PhD, DABNM, FASNM has disclosed no relevant financial relationships

James A. Watt, Jr., CNIM, R.EPT has disclosed no relevant financial relationships

Lawrence Wierzbowski, AuD, DABNM, FASNM has disclosed investment income from Avatrode LLC

W. Bryan Wilent, PhD, DABNM has disclosed no relevant financial relationships

# **REVIEWER DISCLOSURE STATEMENTS**

John D. Hastings, MD, CNIM, DABNM, FASNM has disclosed no relevant financial relationships

J. Richard Toleikis, PhD, DABNM, FASNM has disclosed no relevant financial relationships

# PLANNING COMMITTEE | ADMINISTRATION DISCLOSURE STATEMENTS

Jay L. Shils, PhD, DABNM, FASN, FACNS has disclosed income from Elsevier; research income from Medtronic; consultant income from Globus; advisory board income from Engineurix Laura B. Hemmer, MD has disclosed no relevant financial relationships

Cayla Marconi, Executive Director has disclosed no relevant financial relationships



Long-Latency Motor Evoked Potentials (LLMEPS): Open the TceMEP Recording Window for an Expanded View David Barnkow, AuD, DABNM, CCC-A

Coticobulbar Motor Evoked Potentials of Extraocular Muscles During Skull Base Surgery: A Feasible, Reproductile and Useful New Methodology

Juan P. Cabrera C; Esteban Torche V; Francisco Luna A; Sebastián Vigueras A; José L. Cuevas S; Jaime Pinto V; Eduardo López F; Guillermo Valdés I

Mapping the Median Nerve for Brachialis to Anterior Interosseous Nerve Transfer Nicholas Chulski, BA, CNIM

Antidromic Sensory Potential Mapping Predicts Sensory Deficits Following Root-Entry Zone Rhizotomies For Trigeminal Neuralgia J.P Clark III, PhD, DABNM, CNIM; Edward Chung, MD

A Hypothetical Proposal Application of IONM in Nerve Rerouting Procedure and a Brief Historical Review of Electrophysiological Study on The Xiao's Procedure **Shuiping Dai MD, PhD, DABNM** 

Triggered Electromyogram Recordings From Urethral Electrodes Faisal R. Jahangiri, MD, CNIM, DABNM, FASNM; Rabehah Asdi

The Impact of Brainstem Flexes in Posterior Fossa Surgery As a True Continuous Monitoring Technique Mirallave Pescador A; Téllez MJ; Sánchez Roldán MA; Pollock J; Ulkatan S

An Improved Methodology For Eliciting A Reliable Somatosensory Evoked Potential of The Saphenous Nerve During Spine Surgeries Mora Granizo F; Sánchez Roldán MA; Téllez MJ, Ulkatan S

Multimodality IONM Changes During Oblique Lateral Interbody Fusion Kathryn Overzet, MS, CNIM; Lindsay Krisko, CNIM

Reducing Accidental Needlesticks During IOM Procedures Grace Padilla-Kastenberg, MPH; Brent Tyler, MD, CNIM

Intra-Operative TcMEPs Monitorable on Dejerine-Sottas Patient Amanda Schaefer, DABNM; Gowri Lakshminarayan, MD; Kelli Klein

T9-T10 Fracture In a Patient with Morbid Obesity and Ankylosing Spondylitis: Case Report Yinchen Song PhD; Erik J. Kobylarz MD, PhD; Linton T. Evans, MD; Brandon K. Root MD; Daniel R. Calnan MD, PhD; Stephanie A. Ferri CNIM; George P. Thomas Jr. MD, PhD

False Negative Cortical SSEPs in Spinal Cord Tumor Resection: What Can We Learn About the Neurophysiology? Richard Vogel, PhD; Derek Connor, DHA; Adam Doan, DC

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#### Signal Gear

#### signalgear.com Signal Gear is a medical device company focused on designing and developing neurodiagnostic accessories. Founded on the premise that passionate, thoughtful study is key to innovation and creativity, we study the scientific literature, the patient and clinical practice. Our goal is to provide the optimal patient product for each specialty, from the clinical office setting to the operating room, by tirelessly testing products in our electrical, mechanical, and clinical test labs. Stop by our booth and introduce yourself. We'd love to meet you and hear about your work!





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Spes Medica is pleased to announce its official launch into the United States. Spes Medica specializes in the production of electromedical devices. We offer our customers innovative solutions to be used in Neurodiagnostics, Intraoperative Monitoring, Cardiology and Physiotherapy fields. We have offices in 13 cities around the world. Thanks to our 18 years of experience and our collaboration with research organizations/ hospitals, we were able to develop and consolidate our know-how. Our goal is building high quality products to improve the quality of diagnostic tests and therapies.

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other IONM accessories. Our line includes our own brands as well as those from other industry leaders. The company has been in business since June 2003.

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#### Natus Neuro

Natus Neuro is a global market leader that provides diagnostic, therapeutic and surgical solutions built on a strong heritage in neurodiagnostics, neurocritical care and neurosurgery. Natus Neuro delivers clinician-led products that improve outcomes and enhance care for neuro patients through leading-edge equipment, service, education and supplies.

#### Neurogen Network

The NGN mission is to take the Neuromonitoring industry to the next level with quality software that combines an unmatched user experience and advanced back-end processing. We offer users of all technical skill level a window into their data through our reporting software that can change everyday business decisions into data-founded executive strategies.

#### Procirca

Procirca pioneered and perfected on-site and remote IONM. Procirca monitors over 7,000 procedures annually, and our name is synonymous with the highest standards of education and training in the industry. Procirca's quality, experience and excellence were integral to UPMC, our parent company, receiving the prestigious, ABRET IONM Lab Accreditation.

#### SpecialtyCare

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Physicians and hospitals should always have the best possible means to ensure the most positive patient outcomes, while being able to maintain their own financial health and success. To help our customers achieve this, we are committed to delivering exceptional care outcomes, patient safety, and financial results in over 1,000 hospitals and health systems, supporting 13,000 physicians during 350,000+ procedures annually. This makes us the market leader in perfusion and intraoperative neuromonitoring, and the industry's choice for autotransfusion, sterile processing management, surgical assist, and minimally invasive surgical support.

#### Synaptic Resources

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Synaptic Resources (SR), a leader in Intraoperative Neurophysiologic Intraoperative Monitoring (IONM) was formed in 2005 and is headquartered in Tulsa, Oklahoma. SR has rapidly expanded with local offices throughout Oklahoma, Texas and Florida. Today, SR is poised for future growth because of our team of highly responsive and respected Electroneurodiagnostic (END) Technicians and seamless management infrastructure. More and more Surgeons and Hospitals choose SR because we deliver a high quality service with a local touch

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#### ASET

#### aset.org

The American Society of Electroneurodiagnostic Technologists is the largest national professional association for individuals involved in the study and recording of electrical activity in the brain and nervous system. Organized in 1959, ASET's mission is to provide leadership, advocacy and professional excellence for our members, creating greater awareness of the profession and establishing standards and best practices to ensure quality patient care.

## Global Organization of Health Education

The Neurodiagnostic Society

#### Global Organization of Health Education gohealthed.org

At the Global Organization of Health Education, we are changing the way medical missions have been carried out for years, beginning with a pilot project in Ethiopia that we will replicate in many nations in the future. We use telemedicine and volunteer professionals to offer medical education to people in developing nations. We have partnered with Mekelle University to establish a Neuroscience training program. Equipment for this program included three portable electroencephalogram (EEG) machines. With this equipment, the University of Mekelle has the technology that is required to continue a self-sustained education program in Neurosciences for future students.

We hope to implement future projects in other countries that have a similar structure to our Ethiopia pilot project.

We continue to partner with various health and technology corporations to support our projects, which in turn benefits these corporations through acknowledgement of donations and contribution to the progression and results of our projects.

# ASNM CREDITED WEBINARS

All Webinars are approved for (1) hour of of ASNM-CEUs and AMA PRA Category 1 CreditTM



Part 1 of 2: Review of IONM Nuances relative to Lumbar Interbody Surgical Approaches including: PLIF, TLIF, MI-TLIF, OLIF/ATP, LLIF and ALIF

Wednesday, May 22, 2019 • 7:00 PM Eastern

#### Mike Riley, MS, CNIM

President of Peak Neurophysiology Group, LLC

Mike has a background in cellular, systems, and developmental neuroscience, earning his Master of Science degree from Cornell University in 2010. He then completed a 1 year fellowship in Clinical Neurophysiology at Surgical Monitoring Associates; one of the very first private IONM groups in the country. Mike has personally monitored over 1,800 surgical procedures and is a firm believer that IONM clinicians should be experts in both the technical and interpretive components of their practice. He is currently the President and CEO of Peak Neurophysiology Group, and is actively promoting this professional model of IONM delivery to hospitals and surgical groups around the country.

#### Chris Martin, R.EP T., CNIM

Neurophysiologist at Neuro Alert

Chris has been in IOM since 1991, in both academic (with David Loiselle, PhD, at University of Rochester, and Mark Stecker, MD PhD, at the University of Pennsylvania), and private-provider settings. He received his R.EP.T. in 1995 and his CNIM in 1998 (#213). He has contributed to journal publications and book chapters and has spoken extensively on Intraoperative monitoring at conferences across the United States, and in Europe, the Middle East, Asia and South America.

Chris has previously been an ABRET examiner for the Evoked Potential section, an invited manuscript referee, and has been an active member of the ASNM Ethics Committee since 2011.



Part 2 of 2: Review of IONM Nuances relative to Lumbar Interbody Surgical Approaches including: PLIF, TLIF, MI-TLIF, OLIF/ATP, LLIF and ALIF

Wednesday, June 19, 2019 • 7:00 PM Eastern

Mike Riley, MS, CNIM President of Peak Neurophysiology Group, LLC

Chris Martin, R.EP T., CNIM Neurophysiologist at Neuro Alert 15







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