



PRINCIPLES AND PRACTICE OF
**INTRAOPERATIVE
NEUROMONITORING**

NOVEMBER 12 - 14, 2021

UPMC
LIFE CHANGING MEDICINE

Course Objectives

Principles and Practice of Intraoperative Neuromonitoring is designed for advanced professionals who perform or support intraoperative neuromonitoring (IONM) procedures. This includes but is not limited to:

- Neurologists
- Surgical Neurophysiologists
- PM&R Physicians
- Neurological Surgeons
- Anesthesiologists
- Orthopedic Surgeons
- Board Certified Neurophysiologists
- Vascular Surgeons
- Senior Neurophysiology Technologists
- ENT Surgeons
- Cardiac Surgeons

The course will highlight practice specifications, multimodality protocols, recent advances in the field, pre-/post-operative neurological evaluation and management, and telemedicine. Presentations will make reference to current literature, technical developments, methodologies and clinical efficacy. The faculty includes University of Pittsburgh Medical Center physicians and neurophysiologists with extensive clinical and academic expertise in IONM. The course exposes participants to material that will allow them to acquire a comprehensive understanding of IONM and how it relates to:

- Advanced principles for neurophysiological monitoring, including instrumentation, neuromonitoring protocols, alarm criteria and clinical efficacy
- Minimally invasive spine surgery, including transposas approaches
- Pre-, peri- and post-operative evaluation of neurological complications including stroke, cognitive deficits, seizure and spinal cord injury
- Multimodality monitoring techniques for a broad array of procedures including spine and vascular
- Cranial nerve monitoring during skull base procedures
- Interpretation and communication with surgical team
- Development of a Policy & Procedure manual; documentation and communication with the technologist; development of quality assurance metrics; and staff training
- Problem based learning with real-time data analysis and formulation of differential diagnoses

Interactive Workshop Stations

- Instruction and the opportunity to practice placing cranial nerve EMG electrodes on a cadaver (including the extra-ocular muscles)
- Case study review session where participants will work through differential diagnoses
- Cerebrovascular anatomy and the role of IONM in Neurointerventional procedures
- Explore technical problems in IONM and how to develop algorithms for troubleshooting

Course Directors

Katherine Anetakis, MD
University of Pittsburgh Department of Neurological Surgery

Jeffrey R. Balzer, PhD, FASNM, DABNM
Associate Professor of Neurological Surgery, Neuroscience and Acute and Tertiary Care Nursing
Director, Clinical Operations, Center for Clinical Neurophysiology
Director, Cerebral Blood Flow Laboratory
University of Pittsburgh Medical Center

Course Coordinator

R. Joshua Sunderlin, MS, CNIM
Director of Neurodiagnostic Education – Procirca Center for Clinical Neurophysiology

Faculty

Gregory Adams, CNIM
Procirca Center for Clinical Neurophysiology

Katherine Anetakis, MD
University of Pittsburgh Department of Neurological Surgery

Jeffrey Balzer, PhD
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James Castellano, MD, PhD
University of Pittsburgh Department of Neurological Surgery

Mindy Corridoni, CNIM
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University of Pittsburgh Department of Neurological Surgery

Wendy Fellowes-Mayle, PhD
University of Pittsburgh Department of Neurological Surgery

Jorge Gonzalez-Martinez, MD, PhD
University of Pittsburgh Department of Neurological Surgery

Anthony Gossett, CNIM
Procirca Center for Clinical Neurophysiology

Carly Kleynen, CNIM
Procirca Center for Clinical Neurophysiology

Anthony Kyte
President of Australasia Association for Intraoperative Neuromonitoring (AAIN)

Michael Lang, MD
University of Pittsburgh Department of Neurological Surgery

Bradford Mahon, PhD
Carnegie Mellon University Department of Psychology

Partha Thirumala, MD, FACNS, FAAN
Professor of Neurology, Associate Professor of Neurological Surgery
Medical Director, Center for Clinical Neurophysiology
University of Pittsburgh Medical Center

Donald J. Crammond, PhD
Associate Professor of Neurological Surgery, University of Pittsburgh
Associate Director, Movement Disorder Surgery

Vincent Miele, MD
University of Pittsburgh Department of Neurological Surgery

Andrew Moyer, CNIM
Procirca Center for Clinical Neurophysiology

Varun Shandal, MD
University of Pittsburgh Department of Neurological Surgery

Jeremy Shaw, MD
University of Pittsburgh Department of Orthopedic Surgery

Ibrahim Sultan, MD
University of Pittsburgh Department of Cardiovascular Surgery

R. Joshua Sunderlin, MS, CNIM
Procirca Center for Clinical Neurophysiology

Partha Thirumala, MD
University of Pittsburgh Department of Neurological Surgery

Ulkatan Sedat, MD
Mount Sinai West Hospital

Silvia Mazzali Verst, MD, PhD
Brain Spine Neurofisiologia, Brazil

Shyam Visweswaran, MD, PhD
University of Pittsburgh

Xuhui Wang, MD
Xinhua Hospital Department of Neurosurgery, Peoples Republic of China

Marshal Wilkinson, PhD
University of Manitoba Department of Neurosurgery; President of the CANM

Pascal Zinn, MD, PhD
University of Pittsburgh Department of Neurological Surgery

Nathan Zwagerman, MD
Medical College of Wisconsin Department of Neurosurgery

Keynote Speaker

Bryan Wilent, PhD
SpecialtyCare, President of ASNM

DAY 1 FRIDAY NOV 12

7-7:30AM Continental breakfast

7:30-7:45AM Welcome address
(Jeff Balzer PhD/ Josh Sunderlin MS, CNIM)

Principles of Intraoperative Neuromonitoring:

7:45-8:15AM IONM: The History and Physiological Basis Partha Thirumala, MD

8:15-8:45AM Principles of EEG Monitoring During Surgery Katherine Anetakis, MD

8:45-9:15AM Principles of SSEP Monitoring During Surgery Donald Crammond, PhD

9:15-9:30AM BREAK (15 min)

9:30-10AM Principles of TcMEP Monitoring During Surgery Jeffrey Balzer, PhD

10-10:30AM Principles of BAER Monitoring During Surgery James Castellano, MD, PhD

10:30-11AM Principles of EMG Monitoring During Surgery Varun Shandal, MD

11AM-Noon LUNCH BREAK

IONM For Spinal Surgery:

Noon-12:30PM Pediatric Spinal Procedures Taylor Abel, MD

12:30-1PM MIS Procedures Vincent Miele, MD

1-1:30PM Spinal Fusion Procedures Jeremy Shaw, MD

1:30-1:45PM BREAK (15 min)

Supratentorial Mapping:

1:45-2:15PM Craniotomy Procedures with Mapping Pascal Zinn, MD, PhD

2:15-2:45PM Techniques for Direct Cortical and Subcortical Mapping Silvia Verst, MD, PhD

2:45-3:15PM Functional Speech Assessment in Awake Craniotomy Bradford Mahon, PhD

Skull base Procedures:

3:15-3:45PM Monitoring of Skull Base Procedures Ulkatan Sedat, MD

3:45-4:30PM Skull base procedures Nate Zwagerman, MD

4:30PM Break for Change of Venue
Reconvene at Hilton Garden Inn at 5:30PM

5:30-7:30PM Meet and Greet with Faculty & Exhibitors,
Hilton Garden Inn

6-7PM KEYNOTE SPEECH: TcMEP for Lumbar Nerve Root IONM Bryan Wilent, PhD

7:30PM Adjournment (Day 1)

DAY 2 SATURDAY NOV 13

7-7:30AM Continental Breakfast

7:30-7:45AM Day 2 Announcements Jeffrey Balzer PhD/ Josh Sunderlin MS, CNIM

International IONM:

7:45-8:15AM IONM in Australia Anthony Kyte

8:15-8:45AM IONM in China Xuhai Wang, MD

8:45-9:15AM IONM in Canada Marshall Wilkinson, PhD

9:15-9:30AM BREAK (15min) Exhibitor Area

IONM for Stroke Prevention:

9:30-10AM IONM for Stroke Prevention Partha Thirumala, MD

10-10:30AM IONM for Cardiovascular Procedures Ibrahim Sultan, MD

10:30-11AM Neurointerventional Procedures Michael Lang, MD

11AM-Noon Lunch in Exhibitor Area

Workshops:

Noon-12:30PM Bloodborne Pathogens Lecture and Exam Josh Sunderlin, MS

12:30-5PM Workshops:

Station 1:
Placing Cranial Nerve EMG Electrodes on Cadavers Wendy Fellows-Mayle PhD / Gregory Adams, CNIM

Station 2:
Interactive Case Study Review Session Partha Thirumala, MD / Josh Sunderlin, MS, CNIM

Station 3:
Cerebrovascular Anatomy and Interactive Case Studies Jeffrey Balzer, PhD / Carly Brog, CNIM

Station 4:
Troubleshooting Technical Problems with IONM Equipment Katherine Anetakis, MD / Andrew Moyer, CNIM

5PM Adjournment (Day 2)

DAY 3 SUNDAY NOV 14

7-7:30AM Continental Breakfast

7:30-7:45AM Day 3 Announcements Jeffrey Balzer, PhD/ Josh Sunderlin, MS, CNIM

Functional Neurosurgery:

7:45-8:15AM Functional Neurosurgery Jorge Gonzales-Martinez, MD, PhD

Artificial Intelligence:

8:15-8:45AM Artificial Intelligence in IONM Shyam Visweswaran, MD, PhD

Review Submitted Data:

8:45-9:45AM Attendees submit data in advance to be reviewed and discussed collaboratively-Katherine Anetakis, MD; Jeffrey Balzer, PhD; Donald Crammond, PhD; Partha Thirumala, MD

9:45-10AM BREAK (15min)

Improving IONM Practice:

10-10:30AM Training Process Improvement Anthony Gossett, CNIM

10:30-11AM Teaching Troubleshooting Josh Sunderlin, MS, CNIM

11-11:30AM Quality Assurance Katherine Anetakis, MD, & Mindy Corridoni, CNIM

11:30AM-Noon Communication and Documentation (Medico-legal Implications) Jeffrey Balzer, PhD

Noon Conference Adjournment

Sponsored by Procirca and University of Pittsburgh School of Medicine Center for Continuing Education in the Health Sciences

Tuition

\$600 for physicians and other attendees seeking CME credits
\$400 for all other healthcare professionals seeking CEU credits

Registration and Payment

Please register and pay directly from our website:

<https://procirca.com/neuromonitoring/neuromonitoring-workshop/>

On-site registration will not be permitted.

CME Accreditation and Designation

In support of improving patient care, the University of Pittsburgh is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physician (CME)

The University of Pittsburgh designates this live activity for a maximum of 21 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Other Healthcare Professionals:

Other health care professionals will receive a certificate of attendance confirming the number of contact hours commensurate with the extent of participation in this activity.

ASET – The Neurodiagnostic Society has granted 21.5 Continuing Education Units [ASET-CEUs] for this program. Such crediting, however, should not be construed by program participants as an endorsement of any type of instruments or supplies mentioned or involved in these presentations.

Special Needs

Participation by all individuals is encouraged. Advance notification of any special needs will help us provide better service. Please notify us of your needs at least two weeks in advance of the program by calling 412-647-3450.

Cancellation Policy

- Registration fee is 100% refundable up until October 6, 2021.
- Registration fee is 50% refundable up to 15 days prior to the start date of the course.
- If you cancel within 15 days of the start of the course, **NO REFUNDS** will be granted.

Cancellation requests should be sent to:

Josh Sunderlin, Course Coordinator
Procirca Center for Clinical Neurophysiology

Phone: 412-647-3450

Email: sunderlinj@procirca.com

Course location and hotel accommodations

Location:

UPMC Presbyterian Hospital
Biomedical Science Tower
Room S120
Pittsburgh, PA 15213

Hotels within walking distance of campus:

Hilton Garden Inn Pittsburgh University Place
3454 Forbes Avenue
Pittsburgh, PA 15213
Phone: (412) 683-2040

Distance from campus is 0.3 miles;
travel time on foot is five minutes.

A block of rooms is being held at the Hilton Garden Inn University Place at a rate of \$144.00/night.

https://hiltongardeninn.hilton.com/en/gi/groups/personalized/P/PITUCGI-PPIN-20211111/index.jhtml?WT.mc_id=POG

Wyndham Pittsburgh University Center

100 Lytton Avenue
Pittsburgh (Oakland), PA 15213
Phone: (412) 682-6200

Distance from campus is 0.7 miles;
travel time on foot is 10 minutes.

Wyndham nightly parking charge: \$10.00

Please note: the 2021 course offers both an in-person and virtual option for participation.

Procirca Center for Clinical Neurophysiology

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Register today at
[procirca.com/neuromonitoring/
neuromonitoring-workshop](http://procirca.com/neuromonitoring/neuromonitoring-workshop)