



PRINCIPLES AND PRACTICE OF
**INTRAOPERATIVE
NEUROMONITORING**

NOV. 3 - 5, 2017

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

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 is designed to expose the participants to material that will allow them to acquire a comprehensive understanding of IONM and how it relates to a wide variety of relevant topics such as:

- Advanced principles for neurophysiological monitoring, including instrumentation, neuromonitoring protocols, alarm criteria and clinical efficacy
- Minimally invasive spine surgery, including transspinal 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
- Innovations in telemedicine
- Microelectrode recording during Deep Brain Stimulation (DBS)
- Cranial nerve monitoring during skull base procedures
- Neuroanesthesia
- 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

Hands-on Workshops

What sets this course apart from any other is the inclusion of a 4 hour hands-on workshop where all attendees will have the opportunity to put what they have learned from lectures into practice. During this workshop, participants will receive instruction and guidance while placing electrodes for cranial nerve EMG monitoring on cadavers (including the extra-ocular muscles). Participants will also learn to place upper and lower extremity EMG electrodes accurately on anatomical models, build multimodality tests with IONM equipment, and use transcranial Doppler to insonate cerebral vessels. There will also be ample opportunity for interaction between the faculty and the audience. All of this comes at no additional cost for all course participants.

Due to the time constraints associated with such a workshop, space will be very limited for this course. Be sure to reserve your spot early so you don't miss this chance to gain a truly unique education in Neuromonitoring!

Course Directors

Jeffrey R. Balzer, Ph.D., 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

Parthasarathy Thirumala, M.D., FACNS, FAAN

Associate Professor of Neurological Surgery and Neurology
Medical Director, Center for Clinical Neurophysiology University of Pittsburgh Medical Center

Course Coordinator

R. Joshua Sunderlin, M.S., CNIM

Education Specialist - Procirca Center for Clinical Neurophysiology

Faculty

Katherine Anetakis, M.D.

University of Pittsburgh Department of Neurological Surgery

Maria Baldwin, M.D.

University of Pittsburgh Department of Neurology

Jeffrey Balzer, Ph.D.

University of Pittsburgh Department of Neurological Surgery

Mindy Corridoni, B.S., CNIM

Procirca Center for Clinical Neurophysiology

Donald Crammond, Ph.D.

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Brian Gierl, M.D.

University of Pittsburgh Department of Anesthesiology

Aatif M. Husain M.D.

Duke University Department of Neurology

Ashu Jadhav, M.D., Ph.D.

University of Pittsburgh Department of Neurology

Andrew Moyer, B.S., CNIM

Procirca Center for Clinical Neurophysiology

Ryan Quallich, B.S., CNIM

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Mark Richardson, M.D.

University of Pittsburgh Department of Neurological Surgery

Raymond Sekula, M.D.

University of Pittsburgh Department of Neurological Surgery

R. Joshua Sunderlin, M.S., CNIM

Procirca Center for Clinical Neurophysiology

Parthasarathy Thirumala, M.D.

University of Pittsburgh Department of Neurological Surgery

Day 1

Faculty*

7:00-7:20	Continental Breakfast (S120)	
7:20-7:30	Welcome Address	Jeffrey Balzer, PhD

Principles of Intraoperative Monitoring (IONM)

7:30-8:00	Perioperative Neurology and Physiological Basis of Monitoring	Partha Thirumala, MD
8:00-8:45	Neuroanesthesia	Brian Gierl, MD
8:45-9:30	Communication and Documentation: Medico-legal Implications	Jeffrey Balzer, PhD
9:30- 10:00	Break	

IONM Modalities for Surgical Procedures

10:00-10:30	Principles and Practice of EEG Monitoring during Surgery	Katherine Anetakis, MD
10:30-11:00	Principles and Practice of SSEPs monitoring during surgery	Donald Crammond, PhD
11:00-11:30	Principles and Practice of TcMEP monitoring during surgery	Jeffrey Balzer, PhD
11:30-12:00	Principles and Practice of BAEP monitoring during Surgery	Partha Thirumala, MD
12:00-1:30	Lunch break	

IONM during Functional Neurosurgery and Pain Management Procedures

1:30-2:00	Spinal cord stimulator placement	Jeffrey Balzer, PhD
2:00-2:30	Microelectrode Recording for Deep brain stimulation	Donald Crammond, PhD
2:30-3:00	Epilepsy Surgery and Cortical Mapping	Maria Baldwin, MD
3:00-3:30	Deep Brain Stimulator: Past and Future	Mark Richardson, MD, PhD
3:30-4:00	Break	
4:00-4:45	Differential Diagnosis and Interpretation of data: Case based learning:	Jeffrey Balzer, PhD Donald Crammond, PhD Partha Thirumala, MD
4:45	Conference adjournment	
5:30-7:30	Meet and Greet - Faculty & Vendors Hilton Garden Inn Forbes Ball Room Light hors d'oeuvres and open bar	

Day 2

7:00-7:20	Full Breakfast (S120)	Faculty*
7:20-7:30	Day 2 Announcements	Jeffrey Balzer, PhD

IONM for Skull Base Procedures

7:30-8:15	Microvascular decompression: past, present and future	Raymond Sekula, MD
8:15-9:00	EEA procedures	Jeffrey Balzer, PhD
9:00-9:45	KEYNOTE SPEECH - Topic TBD	Aatif Husain, MD
9:45- 10:15	Break with vendors (S123)	

IONM for Vascular and Cardiac Surgery

10:15-10:45	Carotid Endarterectomy	P.D. Thirumala, MD
10:45-11:15	Cerebral Aneurysm Clipping	D.J. Crammond, PhD
11:15-11:45	Neurointerventional procedures	Jeffrey Balzer, PhD
11:45-12:15	Aortic and Cardiac Procedures	P.D. Thirumala, MD
12:15-1:00	Lunch - Instructions for Group Workshops	

Workshop: Instruction and Hands-on Learning

1:00-5:10	Station 1: Placing EMG electrodes for Cranial Nerve EMG (cadaver lab)	Ryan Quallich BS,CNIM/ Jeffrey Balzer PhD
	Station 2: Placing Upper and Lower extremity EMG electrodes (S921)	Mindy Corridoni BS,CNIM/Donald Crammond PhD
	Station 3: Building IONM tests with equipment (1105c)	Andrew Moyer BS, CNIM/Katherine Anetakis MD
	Station 4: Transcranial Doppler (1105b)	Josh Sunderlin MS,CNIM/ Partha Thirumala MD
	Station 5: Q/A Session with Course Faculty - (S123)	TBD
5:10	Conference adjournment	

Day 3

7:00-7:20	Continental Breakfast (S120)	
7:20-7:30	Day 3 Announcements	Jeffrey Balzer, PhD

Quality and Safety in IONM

7:30-8:00	Troubleshooting	Joshua Sunderlin, MS/ Jeffrey Balzer, PhD
8:00-8:30	Policy and Procedure Manual Development	Jeffrey Balzer, PhD
8:30-9:00	Equipment and Technology	Ryan Quallich, BS/ Jeffrey Balzer, PhD
9:00-9:30	Training and Quality Assurance	Mindy Corridoni, BS/ P.D. Thirumala, MD
9:30-10:00	Break	

Monitoring and Evaluation

10:00-10:30	DCS for tumor resection	
10:30-11:00	Perioperative evaluation of stroke	Ashu Jadhav, MD, PhD
11:00-11:30	Telemedicine	P.D. Thirumala, MD
11:30-12:00	Controversies in IONM: How should we measure outcomes	Jeffrey Balzer, PhD
12:00- 1:00	Lunch	

Monitoring during Spinal Surgery

1:00-1:30	Spinal Tumor Removal and D Wave Monitoring:	P.D. Thirumala, MD
1:30-2:00	Minimally invasive spine surgery (MIS)	Jeffrey Balzer, PhD
2:00-2:30	Scoliosis Correction	K.M. Anetakis, MD
2:30-3:00	Differential Diagnosis and Interpretation of Data	Jeffrey Balzer, PhD
3:00	Conference adjournment	

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

Tuition

\$650 for physicians and other attendees seeking CME credits
\$500 for all other healthcare professionals seeking CEU credits

procirca.com/intraoperative-neuromonitoring/Pages/neuromonitoring-workshop.aspx

Registration and Online Payment

On-line registration can be completed by visiting the Procirca website, procirca.com.

CME Accreditation and Designation

The University of Pittsburgh School of Medicine designates this live activity for a maximum of 20.75 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Other health care professionals are awarded 2.0 continuing education units (CEU's) which are equal to 20.7 contact hours.

ASET - The Neurodiagnostic Society has granted 20.5 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.

Faculty Disclosure

All individuals in a position to control the content of this education activity are required to disclose all relevant financial relationships with any proprietary entity producing, marketing, re-selling, or distributing health care goods or services, used on, or consumed by, patients.

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 412-647-1453.

Cancellation Policy

- Registration fee is 100% refundable up until September 5, 2017
- A 50% refund of the registration fee will be offered between September 5 and October 5, 2017
- After October 5, 2017 - NO REFUNDS GRANTED

Cancellation requests should be sent to:

Josh Sunderlin, Course Coordinator
Procirca Center for Clinical Neurophysiology
Phone: 412-647-1453 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

454 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 \$139.00/Night.

hiltongardeninn.hilton.com/en/gi/groups/personalized/P/PITUCGI-PPIM-20171102/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

The University of Pittsburgh is an affirmative action, equal opportunity institution.

Procirca Center for Clinical Neurophysiology

1020 Madison Avenue
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Phone: **412-647-1453**

procirca.com



Course Directors and Faculty:

Partha Thirumala, M.D., Donald Crammond, Ph.D., and Jeffrey Balzer, Ph.D.

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Space is very limited. Register today at
[procirca.com/intraoperative-neuromonitoring/
Pages/neuromonitoring-workshop.aspx](http://procirca.com/intraoperative-neuromonitoring/Pages/neuromonitoring-workshop.aspx)