PRINCIPLES AND PRACTICE OF INTRAOPERATIVE NEUROMONITORING
NOVEMBER 6-8, 2020
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 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 transpsoas 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

Course Coordinator
R. Joshua Sunderlin, M.S., CNIM
Education Specialist – Procirca Center for Clinical Neurophysiology

Faculty
Jeffrey Balzer, PhD
University of Pittsburgh Department of Neurological Surgery

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

Rabih Chaer, MD
University of Pittsburgh Department of Vascular Surgery

Mindy Corridoni, CNIM
Procirca Center for Clinical Neurophysiology

Donald Crammond, PhD
University of Pittsburgh Department of Neurological Surgery

Ryan Dzadony, M.Ed, CCP, LP
Procirca School of Perfusion

Stephen Esper, MD
University of Pittsburgh Department of Anesthesiology

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

Bradley Gross, MD
University of Pittsburgh Department of Neurological Surgery

Adam Kanter, MD
University of Pittsburgh Department of Neurological Surgery

Carly Kleynen, CNIM
Procirca Center for Clinical Neurophysiology

Joseph Maroon, MD
University of Pittsburgh Department of Neurological Surgery

Rachel Mihal, CNIM
Procirca Center for Clinical Neurophysiology

Andrew Moyer, CNIM
Procirca Center for Clinical Neurophysiology

Ryan Quallich, CNIM
Procirca Center for Clinical Neurophysiology

Jeremy Shaw, MD
University of Pittsburgh Department of Orthopedic Surgery

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

Partha Thirumala, MD
University of Pittsburgh Department of Neurological Surgery

Shyam Visweswaran, MD, PhD
University of Pittsburgh

George Zenonos, MD
University of Pittsburgh Department of Neurological Surgery

Pascal Zinn, MD
University of Pittsburgh Department of Neurological Surgery

Rich Vogel, PhD
President of American Society of Neurophysiological Monitoring

Jaime López, MD
University of Pittsburgh Department of Neurology

Keynote Speaker
Kathleen Seidel, MD, PhD
Department of Neurosurgery, Inselspital University Hospital, Bern Switzerland
**DAY 1: FRIDAY, NOV. 6th**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00A–7:30A</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:30A – 7:45A</td>
<td>Welcome address Jeff Balzer PhD/Josh Sunderlin MS, CNIM</td>
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<tr>
<td><strong>Principles of Intraoperative Neuromonitoring:</strong></td>
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<tr>
<td>7:45A–8:15A</td>
<td>IONM: The History and Physiological Basis Partha Thirumala MD</td>
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<td>8:15A–8:45A</td>
<td>Principles of EEG Monitoring during surgery Katherine Anetakis, MD</td>
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<td>8:45A – 9:15A</td>
<td>Principles of SSEP Monitoring During Surgery Donald Crammond, PhD</td>
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<tr>
<td>9:15A – 9:30A</td>
<td>BREAK (15 min)</td>
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<tr>
<td>9:30A – 10:00A</td>
<td>Principles of TcMEP Monitoring During Surgery Jeffrey Balzer, PhD</td>
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<tr>
<td>10:00A – 10:30A</td>
<td>Principles of BAER Monitoring During Surgery James Castellano, MD, PhD</td>
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<td><strong>Deep Brain Stimulator:</strong></td>
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<tr>
<td>10:30A – 11:00A</td>
<td>Microelectrode Recording for DBS Donald Crammond, PhD</td>
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<td>11:00-11:45A</td>
<td>LUNCH BREAK – 45 minutes</td>
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<td><strong>IONM For Spinal Surgery:</strong></td>
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<tr>
<td>11:45A–12:15P</td>
<td>Spinal Cord Stimulator Jeff Balzer, Ph.D</td>
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<td>12:15 - 12:45P</td>
<td>Minimally Invasive Spine Procedures Adam Kanter, MD</td>
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<td>12:45P – 1:15P</td>
<td>Spinal fusion Procedures Jeremy Shaw, MD</td>
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<td>1:15P – 1:45P</td>
<td>Lumbar Nerve Root Monitoring Rich Vogel, Ph.D</td>
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<td>1:45P – 2:00P</td>
<td>BREAK (15 min)</td>
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<td><strong>Supratentorial Mapping:</strong></td>
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<td>2:00P – 3:00P</td>
<td>IONM for Epilepsy Surgery James Castellano, MD, Ph.D</td>
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<tr>
<td>2:30P – 3:00P</td>
<td>Awake craniotomy procedures with language mapping Pascal Zinn, MD</td>
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<td><strong>Keynote Speech:</strong></td>
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<td>3:00P – 3:45P</td>
<td>Cortical and Subcortical Motor Mapping in Neurooncological Surgery Kathleen Seidel, MD, PhD</td>
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<td><strong>Skull base Procedures:</strong></td>
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<tr>
<td>3:45P–4:30PM</td>
<td>Skull base procedures George Zenonos, MD</td>
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<td>4:30P – 5:30P</td>
<td>Break – change of venues</td>
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<td><strong>Evening Session Meet and Greet:</strong></td>
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<tr>
<td>5:30P – 7:30P</td>
<td>Meet and Greet with Faculty &amp; Exhibitors, Hilton Garden Inn</td>
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<td>6:00P – 7:00P</td>
<td>“From Icarus to Aequanimitas - Overcoming Adversity and Acquiring Resilience” Joseph Maroon, MD</td>
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<td>7:30P</td>
<td>Adjournment</td>
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**DAY 2: SATURDAY, NOV. 7th**

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<th>Time</th>
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<tr>
<td>7:00A–7:30A</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:30A – 7:45A</td>
<td>Day 2 Announcements Jeffey Balzer PhD/Josh Sunderlin MS</td>
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<tr>
<td><strong>IONM for Stroke Prevention:</strong></td>
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<tr>
<td>7:45A–8:15A</td>
<td>IONM and Stroke Prevention/Management Partha Thirumala, MD</td>
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<tr>
<td>8:15A–8:45A</td>
<td>Neurointerventional Procedures Bradley Gross MD</td>
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<tr>
<td>8:45A – 9:15A</td>
<td>Carotid Endarterectomy &amp; TCAR Rabih Chaer, MD</td>
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<td>9:15A – 9:30A</td>
<td>BREAK (15 min)</td>
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<tr>
<td>9:30A – 10:00A</td>
<td>Cardiopulmonary Bypass Aortic Arch Repair Ryan Dzadony, M.Ed, CCP, LP</td>
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<td>10:00A – 10:30A</td>
<td>Preoperative Screening for Stroke: Who gets IONM? Stephen Esper, MD</td>
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<td>10:30A – 11:15A</td>
<td>Advanced IONM for Open Cerebrovascular Procedures Jaime Lopez, MD</td>
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<tr>
<td>11:15A – 12:15P</td>
<td>Lunch in Exhibitor area (1 hour)</td>
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<td><strong>Workshops:</strong></td>
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<tr>
<td>12:15P – 12:45P</td>
<td>Bloodborne Pathogens lecture and exam Josh Sunderlin, MS</td>
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<td>12:45P – 5:15P</td>
<td>Interactive Workshop Stations</td>
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<td>5:15P</td>
<td>Adjournment</td>
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**DAY 3: SUNDAY, NOV. 8th**

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<th>Time</th>
<th>Event</th>
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<tr>
<td>7:00A – 7:30A</td>
<td>Continental Breakfast</td>
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<tr>
<td>7:30A – 7:45A</td>
<td>Day 3 Announcements Jeffey Balzer PhD/Josh Sunderlin MS</td>
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<tr>
<td><strong>Controversies in IONM:</strong></td>
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<tr>
<td>7:45A – 8:15A</td>
<td>Defining Significance in IONM Alerts Partha Thirumala, MD</td>
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<td><strong>AI in Clinical Neurophysiology:</strong></td>
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<tr>
<td>8:15A – 8:45A</td>
<td>Artificial Intelligence in IONM Shyam Visweswaran, MD, PhD</td>
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<td><strong>Review submitted Data:</strong></td>
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<td>8:45A – 9:45A</td>
<td>Attendees submit data in advance to be reviewed and discussed collaboratively Josh Sunderlin, MS, CNIM</td>
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<td>9:45A – 10:00A</td>
<td>BREAK (15min)</td>
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DAY 3: SUNDAY, NOV. 8th (cont.)

Improving IONM Practice:

10:00A - 10:30A Managing IONM practice  Ryan Quallich, CNIM
10:30A - 11:00A Teaching Troubleshooting  Josh Sunderlin, MS, CNIM
11:00A - 11:30A Quality Assurance  Katherine Anetakis, MD/ Mindy Corridoni, CNIM
11:30A - 12:00P Communication and Documentation (Medico-legal implications)  Jeffrey Balzer, PhD
12:00P Conference Adjournment

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

Tuition
$700 for physicians and other attendees seeking CME credits
$550 for all other healthcare professionals seeking CEU credits

Registration and Payment
Please register and pay directly from our website:

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 21.25 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 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 October 6, 2020.
- 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: 412-647-1453
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 $144.00/Night.

Wyndham nightly parking charge: $10.00

The University of Pittsburgh is an affirmative action, equal opportunity institution.
Procirca Center for Clinical Neurophysiology
Phone: 412-647-1453
procirca.com

Space is very limited. Register today at procirca.com/intraoperative-neuromonitoring/Pages/neuromonitoring-workshop.aspx