


# EDUCATION

## INTRAOPERATIVE NEUROMONITORING FOR CARDIOVASCULAR PROCEDURES

**Online course date:  
March 11, 2023**



Intraoperative Neuromonitoring for Cardiovascular Procedures is designed for cardiac surgeons, cardiologists, neurologists, neuro interventional radiologists, neuro critical care physicians, board-certified clinical neurophysiologists, advanced surgical neurophysiologists, PM&R physicians, perfusionists, APPs that support stroke and cardiac patients, and family medicine practitioners.

This intensive one-day course will explore the evolving role of intraoperative neuromonitoring (IONM) as it applies to cardiovascular procedures. Didactic lectures from world-renowned leaders in IONM, cardiovascular surgery, neuro-interventional radiology, and critical care will present attendees with best-practices in IONM protocols for CV procedures, differential diagnosis and intervention resulting from IONM changes, and postoperative care. The burgeoning standard of “Last Electrically Well” will be presented as a best practice in approaching the IONM for patients undergoing CV procedures and in treating postoperative complications due to stroke. Case presentations from the busiest academic IONM center in the U.S. will be the impetus for discussion and debate surrounding the use of IONM in CV procedures, technical practices, interpretation of data, intervention strategies, and cooperative efforts with the surgical, anesthesia, and critical care teams. Attendees will also be provided the tools and advice to equip them to evaluate, improve, or initiate their own IONM-CV procedure program.

### **Questions?**

**Contact Josh Sunderlin, course coordinator**

**Phone: 412-647-3450**

**E-mail: [sunderlinj@procirca.com](mailto:sunderlinj@procirca.com)**

## SATURDAY, MARCH 11, 2023

8:45 - 9:00am: **Welcome Address**  
Ibrahim Sultan, MD  
Partha Thirumala, MD

### Section I:

9:00—9:20am: **Last electrically well**  
Katherine Anetakis, MD

9:20—9:40am: **Cerebral perfusion and IONM alerts**  
Jeffrey Balzer, PhD

9:40—10:00am: **Anesthetic management in cardiac procedures with IONM**  
Kathir Subramanian, MD

10:00—10:20am: **Modern neuromonitoring – your ally against intraoperative stroke**  
R. Joshua Sunderlin, MS, CNIM

10:20—10:35am: **Panel Discussion (15 min)**  
Jeffrey Balzer, PhD

10:35—10:50am: **Break – Virtual Exhibits**

### Section II:

10:50—11:10am: **Monitoring during open aortic arch procedures**  
Brett Reece, MD

11:10—11:30am: **Cerebral protection devices in transcatheter aortic valve replacement**  
Dustin Kliner, MD

11:30—11:50am: **IONM during endovascular cardio-aortic procedures**  
George Arnaoutakis, MD

11:50—12:10pm: **Stroke risk in carotid procedures**  
Natalie Sridharan, MD

12:10—12:30pm: **Intraoperative maneuvers in response to IONM alerts**  
Arminder Jassar, MD

12:30—12:45pm: **Panel Discussion (15 min) –**  
Ibrahim Sultan, MD

12:45—1:20pm: **Lunch – Virtual Exhibits**

### Section III:

1:20—1:40pm: **Stroke risk in pediatric cardiovascular procedures**  
Melita Viegas, MD

1:40—2:00pm: **Options when Intraoperative Neuromonitoring is not available**  
Joshua Grimm, MD

2:00—2:20pm: **Heart transplant and LVAD procedures – Role of IONM**  
David J. Kaczorowski, MD

2:20—2:40pm: **Evoked Potentials for prognostication after cardiac arrest**  
Partha Thirumala, MD

2:40—3:00pm: **Perioperative stroke: Overview of etiology and diagnosis**  
Marion Hughes, MD

3:00—3:20pm: **Endovascular management of perioperative stroke**  
Ashu Jadhav, MD

3:20—3:35pm: **Panel Discussion (15 min)**  
Partha Thirumala, MD

3:35—3:50pm: **Break – Virtual Exhibits**

### Section IV:

3:50—4:10pm: **Neurocritical Care: Communication is the key**  
Lori Shutter, MD

4:10—4:30pm: **Perioperative stroke risk stratification: Building a plan for who gets IONM at an institutional level**  
Partha Thirumala, MD

4:30—5:15pm: **Complex Case Presentations:**  
Jeffrey Balzer, PhD  
Partha Thirumala, MD  
Katherine Anetakis, MD  
Donald Crammond, PhD  
Sarah Yousef, MD  
Katie Scollon, MPAS, PA-C

5:15pm: **Course Adjournment**

## FACULTY:

**Katherine Anetakis, MD**  
– University of Pittsburgh  
Department of Neurological  
Surgery

**George Arnaoutakis,  
MD** – University of Florida  
Department of Cardiovascular  
Surgery

**Jeffrey Balzer, PhD** –  
University of Pittsburgh  
Department of Neurological  
Surgery

**Natalie Sridharan, MD** –  
University of Pittsburgh  
Department of Vascular  
Surgery

**Donald Crammond, PhD**  
– University of Pittsburgh  
Department of Neurological  
Surgery

**Joshua Grimm, MD** –  
Pennsylvania University  
Department of Cardiothoracic  
Surgery

**Marion Hughes, MD** –  
University of Pittsburgh  
Department of Radiology

**Arminster Jassar, MD** –  
Massachusetts General  
Hospital Department of  
Cardiothoracic Surgery

**David J. Kaczorowski, MD**  
– University of Pittsburgh  
Department of Cardiovascular  
Surgery

**Dustin Kliner, MD** – University  
of Pittsburgh Department of  
Cardiovascular Surgery

**Brett Reece, MD** –  
University of Colorado  
Department of Cardiothoracic  
Surgery

**Katie Scollon MPAS, PA-C**  
– UPMC Heart and Vascular  
Institute

**Lori Shutter, MD** – University  
of Pittsburgh Department of  
Neurology and Critical Care

**Ibrahim Sultan, MD** –  
University of Pittsburgh  
Department of Cardiovascular  
Surgery

**Kathir Subramanian,  
MD** – University of  
Pittsburgh Department of  
Anesthesiology

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

**Partha Thirumala, MD** –  
University of Pittsburgh  
Department of Neurological  
Surgery

**Sarah Yousef, MD** – University  
of Pittsburgh Department of  
Cardiovascular Surgery

**Ashu Jadhav, MD** – Barrow  
Neurological Institute  
Department of Interventional  
Neurology

**Melita Viegas, MD** – University  
of Pittsburgh Department  
of Pediatric Cardiothoracic  
Surgery

## 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 7.25 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### Nursing (CNE)

The maximum number of hours awarded for this Continuing Nursing Education activity is 7.25 contact hours.

### Physician Assistant (AAPA)

The University of Pittsburgh has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 7.25 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

### 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 CEUs

ASET – The Neurodiagnostic Society has granted 7 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.

Procirca is an ABRET-accredited Intraoperative Neuromonitoring lab.

This program is presented by Procirca in conjunction with the University of Pittsburgh Department of Neurological Surgery and The Center for Clinical Neurophysiology. It is endorsed by the Society of Thoracic Surgeons (STS).

### Cancellation Policy

Registration is fully refundable until February 26, 2023. No refunds will be issued after February 26, 2023.

**For more information and registration:**

<https://procirca.com/cardiac-neuromonitoring-course/>

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**Attendance and Access to Lectures:**

This course is offered ONLINE ONLY on March 11, 2023. Credits awarded will be based on attendance records provided by Zoom, and attendees will only be awarded credits for participating during the live presentation. All lectures will be recorded and made available to all participants to view via a link to Google Drive for one year after the course.

**Tuition and Cancellation Policy:**

\$75 for all healthcare professionals  
\$25 for UPMC employees and STS members  
Registration is fully refundable until February 11.  
No refunds will be issued after February 11 2023.

## Course Directors



**Ibrahim Sultan, MD**  
Director, UPMC Center for Thoracic Aortic Disease; Surgical Director, Center for Heart Valve Disease



**Partha Thirumala, MD**  
Medical Director, Center for Clinical Neurophysiology



**R. Josh Sunderlin, MS, CNIM**  
Course Coordinator  
Director of Education,  
Procirca Neurological Services