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About the American Clinical Neurophysiology Society (ACNS)

ACNS’ mission is to serve patients and society by empowering members to advance the science, practice and profession of clinical neurophysiology. This mission serves to fulfill the vision to optimize neurologic health through understanding of nervous system function.

Founded in 1946 and originally named the American Electroencephalographic Society (AEEGS), ACNS is the major professional organization in the United States devoted to the establishment and maintenance of standards of professional excellence in clinical neurophysiology in the practice of neurology, neurosurgery and psychiatry. ACNS members utilize neurophysiology techniques in the diagnosis and management of patients with disorders of the nervous system and in research examining the function of the nervous system in health and disease.

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About the American Clinical Neurophysiology Society (ACNS)

ANNUAL MEETING & COURSES PLANNING COMMITTEES

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Fahd Sultan, MD, FACNS
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Rodrigo Zepeda, MD

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info@acns.org www.acns.org
General Meeting Information

ABOUT THE ANNUAL MEETING & COURSES
This year’s scientific program will feature the latest scientific advances in clinical neurophysiology presented by leading national and international experts in the field. This dynamic program has more choices than ever including the return of the Joint ACNS and International Society symposia, presentations from speakers who are experts in their field. The parallel sessions will provide simultaneous sessions for interests in EEG, electrodiagnosis and neurophysiologic intraoperative monitoring.

The meeting also features a number of opportunities for networking, including a Professional Development Mentorship Program in which residents and fellow applicants are paired with senior ACNS members and provided an opportunity to connect.

Hybrid Format
The 2022 Annual Meeting & Courses will be a hybrid event, offering attendees the option of joining in-person or virtually.

The Annual Courses and select Annual Meeting symposia will be live-streamed, and the Annual Courses will also be available on-demand following the meeting. Annual Meeting sessions will not be recorded nor available for viewing after the meeting.

Delegates attending in Orlando will also have full access to the virtual meeting platform.

COVID Safety Protocols
ACNS will ask individuals registering for the in-person event to attest that they are fully vaccinated or will be fully vaccinated by the time of the meeting. Individuals unable to make this attestation are asked to choose the virtual registration option.

Masks will be required in all areas of the Annual Meeting & Courses, including the exhibit hall, session rooms, committee meetings and common areas. Masks may only be removed when actively eating or drinking.

REGISTRATION RATES & PROCEDURE

<table>
<thead>
<tr>
<th></th>
<th>Annual Meeting</th>
<th>Annual Courses - ALL ACCESS</th>
<th>Full-Day Course (Wednesday)</th>
<th>Half-Day Course (Wed PM; Thurs AM)</th>
<th>Short Courses (Fri PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior/Tech/Reduced Rate</td>
<td>$270</td>
<td>$175</td>
<td>$125</td>
<td>$65</td>
<td>$30</td>
</tr>
<tr>
<td>Member</td>
<td>$400</td>
<td>$350</td>
<td>$250</td>
<td>$125</td>
<td>$65</td>
</tr>
<tr>
<td>Non-Member</td>
<td>$575</td>
<td>$475</td>
<td>$350</td>
<td>$175</td>
<td>$85</td>
</tr>
<tr>
<td>Fellow, Resident, Student, Technologist, Reduced Rate Country</td>
<td>$380</td>
<td>$250</td>
<td>$175</td>
<td>$90</td>
<td>$45</td>
</tr>
</tbody>
</table>

Save on registration fees and avoid long lines onsite when you register before the advance deadline of January 4!

Online registration is a fast and easy way to register in advance, however, delegates may also register by completing and mailing or faxing the PDF registration form available at https://www.acns.org/meetings/annual-meeting-and-courses/2022-annual-meeting--courses/registration

All registrations will be confirmed by email. If you do not receive a confirmation within two weeks of submission, please contact the ACNS Executive Office at (414) 918-9803 or info@acns.org.

HEADQUARTERS HOTEL & HOUSING RESERVATIONS

Renaissance Orlando at Sea World
6677 Sea Harbor Drive
Orlando, FL 32821

Group Rate
$229/night single/double occupancy

Reservations at the group rate will be accepted until January 4, 2022 OR until the block is full, whichever occurs first. Reservations may be made on a space-available basis after the housing deadline of January 4, 2022. We recommend booking your hotel as soon as your travel plans have been confirmed.

The ACNS Annual Meeting website is the ONLY ACNS-authorized system for registering for the conference or booking guest rooms at the Renaissance Orlando at Sea World. Should you be contacted by any group claiming to represent ACNS and urging you to book hotel rooms or register for the meeting through their services (especially at “lower” rates) please be aware that ACNS does not work through or contract with any such groups.
MEETING DESCRIPTION
The ACNS Annual Meeting & Courses are designed to provide a solid review of the fundamentals and the latest scientific advances in both “central” and “peripheral” clinical neurophysiology. Presentations at the Annual Meeting & Courses are given by leading experts in the field and have value for health care professionals who utilize clinical neurophysiology. Sessions include symposia, workshops, courses and Special Interest Groups, featuring didactic lectures, expert panels, debates and interactive formats. Poster presentations at the Annual Meeting highlight the latest work conducted at clinical neurophysiology centers nationally and internationally.

TARGET AUDIENCE
The Society’s educational activities are directed to clinical neurophysiologists, neurologists, psychiatrists, physiatrists, neurosurgeons, trainees in these disciplines and other physicians and researchers who utilize clinical neurophysiological techniques and knowledge in the diagnosis and management of patients with disorders of the nervous system.

ANNUAL COURSES LEARNING OBJECTIVES
At the end of the Annual Courses, the participant will be able to:
1. Describe the indications for use of clinical neurophysiology techniques in diagnosis of disorders of the nervous system;
2. Incorporate new neurophysiology procedures and technological advances into his/her own clinical practice; and
3. Perform and interpret a broad range of clinical neurophysiology procedures, and integrate the results of these tests into comprehensive patient management plans.

ANNUAL MEETING LEARNING OBJECTIVES
At the end of the Annual Meeting, the participant will be able to:
1. Discuss recent advances in electroencephalography, intracranial EEG, evoked potentials, intraoperative neuromonitoring, magnetoencephalography, electromyography, nerve conduction studies, neurophysiology of neuromodulatory devices and other technologies related to practice of neurophysiology; and
2. Apply advances in clinical neurophysiology techniques to improve the diagnosis of neurologic disorders.

ACCREDITATION STATEMENT
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the sponsorship of ACNS. ACNS is accredited by ACCME to provide continuing medical education for physicians.

CREDIT DESIGNATION
ACNS designates the Annual Meeting for 18.5 AMA PRA Category 1 Credit(s)™.
ACNS designates the Annual Courses for the number of AMA PRA Category 1 Credit(s)™ listed below:

Basic EEG
4 AMA PRA Category 1 Credit(s)™

Neurophysiology Technology: EMG/NCV, Sleep, EEG
3 AMA PRA Category 1 Credit(s)™

Evoked Potentials
2 AMA PRA Category 1 Credit(s)™

EMG/Peripheral Nervous System - Part I
4 AMA PRA Category 1 Credit(s)™

EMG/Peripheral Nervous System - Part II
2 AMA PRA Category 1 Credit(s)™

Intensive Care Unit EEG Monitoring (ICU EEG) - Part I
6.75 AMA PRA Category 1 Credit(s)™

Intensive Care Unit EEG Monitoring (ICU EEG) - Part II
4 AMA PRA Category 1 Credit(s)™

Neonatal EEG
2 AMA PRA Category 1 Credit(s)™

Neuromodulation
2 AMA PRA Category 1 Credit(s)™

Neurophysiologic Intraoperative Monitoring (NIOM) - Part I
7 AMA PRA Category 1 Credit(s)™

Neurophysiologic Intraoperative Monitoring (NIOM) - Part II
4 AMA PRA Category 1 Credit(s)™

Stereo EEG - Part I
3.75 AMA PRA Category 1 Credit(s)™

Stereo EEG - Part II
3.5 AMA PRA Category 1 Credit(s)™

Essentials of Sleep for the Busy Clinical Neurophysiologist
2 AMA PRA Category 1 Credit(s)™

Video
3.75 AMA PRA Category 1 Credit(s)™

Physicians should claim only credit commensurate with the extent of their participation in the activity.
Social & Networking Events

WELCOME RECEPTION
Thursday, January 27, 2022 · 7:00 – 8:30pm
Dr. Suzette M. LaRoche, MD, FACNS formally invites all Annual Meeting delegates to attend the ACNS Welcome Reception in the Exhibit Hall. Dr. LaRoche and the ACNS Council are excited to welcome colleagues back together and to toast to the 75th anniversary of ACNS in 2021. Don’t forget to make your $75 donation to the ACNS Strategic Fund to join Dr. LaRoche and Council in a champagne toast!

NEW MEMBER NETWORKING LUNCH
Friday, January 28, 2022 · 12:00 – 1:00pm
ACNS members who have joined the Society in the past year are invited and encouraged to attend the New Member Lunch. ACNS leaders will be in attendance to welcome you to the Society and to discuss all the benefits ACNS membership has to offer.

LOOKING FOR A MENTOR?
Interested in guiding the next generation of Clinical Neurophysiologists?

Sign up for the ACNS Professional Development Mentor Program! The program is seeking both senior faculty willing to provide guidance and mentorship, as well as residents and fellows looking for direction in their careers both in the larger field of CNP and within ACNS.

Join in and network with some of the best neurophysiologists in the world!
The goals of the ACNS Professional Development mentor program are to:

· Foster career development in Clinical Neurophysiology;
· Encourage active participation in the many activities of ACNS; and
· Facilitate networking among ACNS members.

For more information on being a mentor or mentee please go to https://www.acns.org/education/residents-and-fellows and sign up for the program when you register to attend the 2022 ACNS Annual Meeting in Orlando!

PROFESSIONAL DEVELOPMENT MENTORSHIP PROGRAM
Participants in the ACNS Professional Development Mentor Program are welcome to make use of a designated meeting area in the common areas on Friday and Saturday during breaks and lunches. Please look for the designated tables as a place to meet up!
Award Recipients & Lectures

PIERRE GLOOR AWARD PRESENTATION & LECTURE
Walter Paulus, MD
The Pierre Gloor Award is presented annually for outstanding current contributions to clinical neurophysiology research. Dr. Paulus will be recognized and will deliver the 2022 Gloor Lecture on Saturday, January 29, 2022.

ROBERT S. SCHWAB AWARD PRESENTATION & LECTURE
Eva Feldman, MD, PhD
The Robert S. Schwab Award is presented annually for an individual’s outstanding contributions to peripheral clinical neurophysiology research. Dr. Feldman will be recognized and will deliver the 2022 Schwab Lecture on Saturday, January 29, 2022.

HERBERT H. JASPER AWARD PRESENTATION & LECTURE
Eli M. Mizrahi, MD, FACNS
The Herbert H. Jasper Award is presented annually to an individual for a lifetime of outstanding contributions to the field of clinical neurophysiology including research, teaching and mentoring. It is analogous to a lifetime achievement award. Dr. Mizrahi will be recognized and will deliver the 2022 Jasper Lecture on Saturday, January 29, 2022.

MARC R. NUWER SERVICE AWARD PRESENTATION
Frank W. Drislane, MD, FACNS
The Marc R. Nuwer Service Award is presented to an individual in recognition of outstanding service to ACNS and its members, including non-scientific contributions. Dr. Drislane will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.

ACNS DISTINCTION IN TEACHING AWARD
Sarah E. Schmitt, MD, FACNS
This award was created to recognize a mid-career ACNS member for outstanding accomplishments in teaching clinical neurophysiology to fellows, residents, medical students or EEG technologists. Dr. Schmitt will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.

ACNS DISTINCTION IN SERVICE AWARD
Courtney J. Wusthoff, MD, MS, FACNS
This award was created to recognize a mid-career ACNS member who has demonstrated outstanding service to the field of clinical neurophysiology at the institutional or national level. Dr. Wusthoff will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.
WEDNESDAY, JANUARY 26, 2022

9:00am - 5:00pm

ICU EEG - Part I
Course Co-Directors: Courtney J. Wusthoff, MD, MS, FACNS and Nicholas S. Abend, MD, MSCE, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

9:00am Welcome
Nicholas S. Abend, MD, MSCE, FACNS

9:10am Overview of ICU EEG Monitoring
Adriana Bermeo-Ovalle, MD, FACNS

9:40am ACNS Guidelines – Ped and Adult
Nicholas S. Abend, MD, MSCE, FACNS

10:10am Setting Up an ICU EEG Service
William Gallentine, DO, FACNS

10:40am Break

10:50am Tailored Monitoring Approaches
France Fung, MD

11:20am Billing and Coding
Marc R. Nuwer, MD, PhD, FACNS

11:50am Panel Discussion
Adriana Bermeo-Ovalle, MD, FACNS
William Gallentine, DO, FACNS
France Fung, MD

12:10pm Lunch Break (delegates are on their own for lunch)

1:10pm ICU EEG Terminology
Lawrence J. Hirsch, MD, FACNS

1:50pm Periodic and Rhythmic Patterns & Ictal-Interictal Continuum
TBD

2:30pm Artifacts in the ICU
Sarah E. Schmitt, MD, FACNS

3:00pm Panel Discussion
Lawrence J. Hirsch, MD, FACNS
Sarah E. Schmitt, MD, FACNS

3:15pm Break

3:25pm EEG in Toxic Metabolic Encephalopathy
Peter Kaplan, MD, FACNS

4:05pm EEG in Anoxic Brain Injury
Emily Gilmore, MD, MS, FACNS, FNCS

4:45pm Panel Discussion and Concluding Thoughts
Peter Kaplan, MD, FACNS
Emily Gilmore, MD, MS, FACNS, FNCS

9:00am - 5:00pm

Neurophysiological Intraoperative Monitoring (NIOM) - Part I
Course Co-Directors: Eva K. Ritzl, MD, MBA, FRCP (Glasgow), FACNS and Mirela Simon, MD, MSc

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

9:00am Introduction
Eva K. Ritzl, MD, MBA, FRCP (Glasgow), FACNS
Mirela Simon, MD, MSc

9:10am SEP
Aatif M. Husain, MD, FACNS

9:45am MEP
Ronald Emerson, MD, FACNS

10:20am BAER
Alan D. Legatt, MD, PhD, FACNS

10:55 Break

11:05am VEP
Parthasarathy D. Thirumala, MD, FACNS

11:40am EEG
Eva K, Ritzl, MD, MBA, FRCP (Glasgow), FACNS

12:15pm Discussion
Parthasarathy D. Thirumala, MD, FACNS
Alan D. Legatt, MD, PhD, FACNS
Ronald Emerson, MD, FACNS

12:35pm Lunch Break (delegates on their own for lunch)

1:25pm Welcome Back
Eva K. Ritzl, MD, MBA, FRCP (Glasgow), FACNS
Mirela Simon, MD, MSc

1:30pm EMG
Gloria M. Galloway, MD, MBA, FACNS

2:05pm Troubleshooting in the Room and Remote
Jay Shils, PhD, FACNS

2:40pm Anesthesia
Ronald Emerson, MD, FACNS

3:15pm Break

3:25pm Billing
Marc R. Nuwer, MD, PhD, FACNS

4:00pm Medicolegal
Jaime R. Lopez, MD, FACNS

4:35pm Discussion
Jaime R. Lopez, MD, FACNS

= livestreamed  = On-demand  = Spanish language
Annual Courses

WEDNESDAY, JANUARY 26, 2022

Marc R. Nuwer, MD, PhD, FACNS
Jay Shils, PhD, FACNS

9:00am - 12:00pm

Neurophysiology Technology: EMG/NCV, Sleep, EEG
Course Co-Directors: Susan T. Herman, MD, FACNS and Dominic Fee, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the fundamental operation of neurophysiologic recording equipment, from acquisition to review.
2. Evaluate and select neurophysiologic equipment based on knowledge of appropriate technical specifications for clinical or research use.
3. Introduce new neurophysiologic techniques into routine use in the clinical neurophysiology lab, following recommended guidelines.

9:00am  Technical Aspects of Nerve Conduction Studies
Dominic Fee, MD

9:30am  Applications of Instrumentation in Clinical EMG
Paul E. Barkhaus, MD

10:00am  Video-EEG-PSG and other Techniques for Sleep Disorders in Neurologic Patients
Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS

10:30am  Technical Troubleshooting: EMG/NCV Cases
Dominic Fee, MD
Paul E. Barkhaus, MD
Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS

10:45am  Digital EEG: Instrumentation, Recording, and Review
Jonathan J. Halford, MD, FACNS

11:15am  Technology Aspects of Long-Term Monitoring (EMU, ambulatory, ICU)
Susan T. Herman, MD, FACNS

11:45am  Technical Troubleshooting: Sleep and Epilepsy Cases
Dominic Fee, MD
Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS
Jonathan J. Halford, MD, FACNS

1:00pm - 5:00pm

Basic EEG
Course Co-Directors: Ioannis Karakis, MD, PhD, MSc, FACNS and Jay S. Pathmanathan, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

1:00pm  Normal Adult EEG
Ammar Kheder, MD

1:30pm  Normal Neonatal and Pediatric EEG
Lily C. Wong-Kisiel, MD

2:00pm  Normal EEG Variants
Elizabeth E. Gerard, MD, FACNS

2:30pm  Artifacts
Pegah Afra, MD, FACNS

3:00pm  Abnormal Adult EEG: Non Epileptiform Abnormalities
Zubeda B. Sheikh, MBBS, MD

3:30pm  Abnormal Adult EEG: Epileptiform Abnormalities
Ioannis Karakis, MD, PhD, MSc, FACNS

4:00pm  Abnormal Pediatric and Neonatal EEG
Jun T. Park, MD, FAES, FACNS

4:30pm  EEG Quiz
Jay S. Pathmanathan, MD, PhD

= livestreamed  = On-demand  = Spanish language
Annual Courses

WEDNESDAY, JANUARY 26, 2022

1:00pm - 5:00pm

**Stereo EEG (SEEG) - Part I**
Course Co-Directors: Stephan Schuele, MD, MPH, FACNS, FAAN and Giridhar Kalamangalam, MD, DPhil, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

1:00pm Invasive EEG  
*Stephan Schuele, MD, MPH, FACNS, FAAN*

1:30pm Morphology of Intracranial EEG  
*Giridhar Kalamangalam, MD, DPhil, FACNS*

2:00pm Semiology for SEEG  
*Patrick Chauvel, MD*

3:00pm Break

3:15pm Quantitative Analysis of icEEG  
*Jean Gotman, PhD, FACNS*

3:45pm Pediatric SEEG  
*Julia Jacobs, MD, PhD*

4:15pm Seizure Stimulation in Defining EZ  
*Birgit Frauscher, MD, PhD*

4:30pm Wrap Up  
*Stephan Schuele, MD, MPH, FACNS, FAAN*  
*Giridhar Kalamangalam, MD, DPhil, FACNS*
Video EEG
Course Co-Directors: Katie Bullinger, MD, PhD and Sarah E. Schmitt, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the indications and technical requirements for video-EEG monitoring in the inpatient setting.
2. Recognize safety concerns relating to video-EEG monitoring.
3. Distinguish between epileptic seizures and nonepileptic events in adults and children using video-EEG monitoring.
4. Identify localization of epileptic seizures and determine candidacy for epilepsy surgery based on video-EEG findings.

8:00am - 11:00am

8:00am Introduction
Katie Bullinger, MD, PhD

8:05am The EMU: Set Up, Technical Aspects and Indications for Monitoring
Susan T. Herman, MD, FACNS

8:30am Safety in the EMU
Kathryn Noe, MD

8:55am Diagnosing and Localizing Epileptic Seizures Using Video-EEG
Zubeda B. Sheikh, MBBS, MD

8:00am - 12:00pm

EMG/Peripheral - Part I
Course Co-Directors: Ruple Laughlin, MD, FACNS and Devon Rubin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

8:00am Nerve Conduction Studies and Pitfalls
Devon Rubin, MD, FACNS

8:45am EDX in Radiculopathies
Christopher J. Lamb, MD

10:00am EDX Approach to Peripheral Neuropathy
Charenya Anandan, MD

10:45am EDX and US in the Evaluation of CTS and Ulnar Neuropathy
Michael Cartwright, MD

11:45am Discussion
Devon Rubin, MD, FACNS
Christopher J. Lamb, MD
Michael Cartwright, MD
**THURSDAY, JANUARY 27, 2022**

### ICU EEG - Part II

Course Co-Directors: Courtney J. Wusthoff, MD, MS, FACNS and Nicholas S. Abend, MD, MSCE, FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
</tr>
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<tbody>
<tr>
<td>8:00am</td>
<td>Welcome</td>
<td>Nicholas S. Abend, MD, MSCE, FACNS</td>
</tr>
<tr>
<td>8:05am</td>
<td>QEEG Principles</td>
<td>Hiba A. Haider, MD FACNS, FAES</td>
</tr>
<tr>
<td>8:45am</td>
<td>QEEG for Seizures and IIC Patterns</td>
<td>Aaron Struck, MD</td>
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<tr>
<td>9:15am</td>
<td>Multimodal and Ischemia Brain Monitoring</td>
<td>Brandon Foreman, MD, FACNS</td>
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<tr>
<td>9:45am</td>
<td>Panel Discussion</td>
<td>Hiba A. Haider, MD FACNS, FAES</td>
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<td>Aaron Struck, MD</td>
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<tr>
<td></td>
<td></td>
<td>Brandon Foreman, MD, FACNS</td>
</tr>
<tr>
<td>9:55am</td>
<td>Break</td>
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<tr>
<td>10:05am</td>
<td>Utility of QEEG</td>
<td>Cecil D. Hahn, MD, MPH, FACNS</td>
</tr>
<tr>
<td>10:35am</td>
<td>aEEG in the NICU</td>
<td>Courtney J. Wusthoff, MD, MS, FACNS</td>
</tr>
<tr>
<td>11:05am</td>
<td>QEEG Cases</td>
<td>Susan T. Herman, MD, FACNS</td>
</tr>
<tr>
<td>11:40am</td>
<td>Panel Discussion &amp; Conclusions</td>
<td>Cecil D. Hahn, MD, MPH, FACNS</td>
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<td></td>
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<td>Courtney J. Wusthoff, MD, MS, FACNS</td>
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<td>Susan T. Herman, MD, FACNS</td>
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### Neurophysiological Intraoperative Monitoring (NIOM) - Part II

Course Co-Directors: Eva Katharina Ritzl, MD, MBA, FRCP (Glasgow), FACNS and Mirela Simon, MD, MSc, FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:

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<th>Time</th>
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<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00am</td>
<td>Introduction</td>
<td>Eva Katharina Ritzl, MD, MBA, FRCP (Glasgow), FACNS</td>
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<td>Mirela Simon, MD, MSc, FACNS</td>
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<tr>
<td>8:10am</td>
<td>Motor Mapping</td>
<td>Mirela Simon, MD, MSc, FACNS</td>
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<tr>
<td>8:30am</td>
<td>Language Mapping</td>
<td>Dinesh G. Nair, MD, PhD</td>
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<tr>
<td>8:50am</td>
<td>Brainstem and Skull Base Surgery</td>
<td>Jaime R. Lopez, MD</td>
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<tr>
<td>9:10am</td>
<td>Spine Column</td>
<td>Bernard A. Cohen, PhD, FASNM, FACNS</td>
</tr>
<tr>
<td>9:50am</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:05am</td>
<td>Peripheral Nervous System Monitoring and Mapping</td>
<td>Jessie Nance</td>
</tr>
<tr>
<td>10:25am</td>
<td>Vascular Embolization Spine and Brain</td>
<td>Viet Nguyen, MD, FACNS</td>
</tr>
<tr>
<td>10:45am</td>
<td>Monitoring for TAA and Cardiac Surgeries</td>
<td>Michael McGarvey, MD, FACNS</td>
</tr>
<tr>
<td>11:05am</td>
<td>Pediatric Neuromonitoring</td>
<td>Mirela Simon, MD, MSc, FACNS</td>
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<tr>
<td>11:25am</td>
<td>Communication in the OR and Between Monitoring Personnel</td>
<td>Stan Skinner, MD, FACNS</td>
</tr>
<tr>
<td>11:45am</td>
<td>Discussion</td>
<td>Stan Skinner, MD, FACNS</td>
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<td></td>
<td></td>
<td>Mirela Simon, MD, MSc, FACNS</td>
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<td></td>
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<td>Michael McGarvey, MD, FACNS</td>
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Annual Courses

THURSDAY, JANUARY 27, 2022

Stereo EEG (SEEG) - Part II
Course Co-Directors: Stephan Schuele, MD, MPH, FACNS, FAAN
Giridhar Kalamangalam, MD, DPhil, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

8:00am Case Presentation
   Irina Podkorytova, MD

8:30am Case Presentation
   Carol Ulloa, MD

9:00am Case Presentation
   Ahmad Marashly, MD

9:30am Break

10:00am Case Presentation
   Sandipan Pati, MD

10:30am Case Presentation
   Ramya Raghupathi

11:00am Case Presentation
   Guadalupe Fernandez-Baca, MD

11:30am Panel Discussion & Wrap-Up
   Irina Podkorytova, MD
   Carol Ulloa, MD
   Ahmad Marashly, MD
Annual Meeting Scientific Program

THURSDAY, JANUARY 27, 2022

12:15 – 12:45pm Opening Ceremonies
Co-Chairs: Pegah Afra, MD, FACNS and Elizabeth E. Gerard, MD, FACNS

12:45 – 2:00pm Lunch

1:00 - 1:45pm Poster Tours

2:00 - 3:30pm CONCURRENT SESSIONS

Challenging Sensory Nerve Conduction Studies Workshop
Session Director: Devon Rubin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. List the indications for the performance of uncommon upper and lower extremity sensory NCS.
2. Explain the method of performing technically reliable uncommon sensory NCS.
3. Perform uncommon sensory NCS.

2:00pm Challenging Sensory Nerve Conduction Studies Workshop
Devon Rubin, MD, FACNS

2:20pm Cases of Uncommon Lower Extremity Sensory NCS
Ruple Laughlin, MD, FACNS

2:40pm Demonstration
Ruple Laughlin, MD, FACNS

Combining EEG and fMRI for Intractable Epilepsy Evaluation: Something Old, Something New
Session Co-Directors: Jean Gotman, PhD, FACNS and Meriem Bensalem-Owen, MD, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the techniques in combining EEG recording and fMRI.
2. Review the experience and clinical results obtained by this technique from three North American centers.
3. Discuss the development of this technique and the challenges encountered by a newly formed alliance.

2:00pm Introduction
Meriem Bensalem-Owen, MD, FACS

2:05pm The Montreal Neurological Institute Experience
Jean Gotman, PhD, FACNS

2:30pm The Cleveland Clinic Foundation Experience
Balu Krishnan, MD

3:00pm The University of Kentucky Alliance Team Experience
Ruta Yardi, MD

Cortical Spreading Depolarizations: Translating Research Insights into Clinical Practice
Co-Directors: Ediberto Amorim, MD, PhD and Britta Lindquist, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the mechanisms of CSD in health and disease and how CSD contribute to seizure termination and propagation in epilepsy and SUDEP models.
2. Describe the mechanisms targeted by pharmacological agents and neuromodulation interventions for CSD in clinical trials.
3. Identify opportunities and pitfalls of CSD monitoring implementation for patients with acute brain injury with invasive EEG monitoring.

2:00pm Interventional Studies Targeting Cortical Spreading Depolarizations in Humans
Brandon Foreman, MD, FACNS

2:30pm Cortical Spreading Depolarizations: A Novel Seizure Termination Mechanism
David Chung, MD, PhD

3:00pm Pitfalls and Opportunities of Cortical Spreading Depolarizations Monitoring in Critical Care
Edilberto Amorim, MD, PhD

Early Career Training in NIOM: Challenges, Controversies, and Insights
Session Co-Directors: Atif Sheikh, MD and George W. Culler, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the different NIOM practice models available and the advantages/disadvantages of each type of practice.
2. Demonstrate awareness and knowledge of existing controversial topics in NIOM.
3. Design a more appropriate NIOM curriculum for trainees that are looking to incorporate NIOM in their careers.

2:00pm Knowledge Gap Between Current and Ideal Practice in NIOM
Atif Sheikh, MD
George W. Culler, MD

2:15pm Panel Discussion & Debate
Yafa Minazad, DO, FACNS
Inna Keselman, MD, PhD

2:30pm Panel Discussion

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Annual Meeting Scientific Program

THURSDAY, JANUARY 27, 2022

The Long and Short of EEG Studies: What is the Ideal Duration?

Session Co-Directors: Elson So, MD, FACNS and Adriana Bermeo-Ovalle, MD, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Assess the length of routine EEG that increases its yield in seizure disorders.
2. Know the limitations of prolong EMU recordings and the measures to enhance detection of EEG abnormalities and clinical events.
3. Apply factors that determine the duration needed for continuous EEG monitoring in the critically ill.

2:00pm  The Routine EEG: How long is “Routine”?
David Burkholder, MD

2:25pm  EEG in Epilepsy Monitoring: How Long to Wait for Events, and How Many?
Adriana Bermeo-Ovalle, MD, FACS

2:50pm  Critical Care EEG Monitoring: What is the risk of missing seizures?
Aaron Struck, MD

3:15pm  Summary with Open Forum
Elson So, MD, FACNS

3:30 – 3:45pm  Break

3:45 - 5:15pm  CONCURRENT SESSIONS

CNP Program Directors’ Symposium
Session Co-Directors: Lynn Liu, MD, FACNS and Ioannis Karakis, MD, PhD, MSc, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the various aspects of quality improvement, from study design to production, teaching and publication.
2. Advise a colleague on how to become an educational leader.

3:45pm  Introduction
Lynn Liu, MD, FACNS
Ioannis Karakis, MD, PhD, MSc, FACNS

3:50pm  Quality Improvement in CNP: Basic Principles and Methodology
Andrea N. Leep Hunderfund, MD

4:10pm  Quality Improvement in EEG and Epilepsy
Lidia M.V.R. Moura, MD

4:30pm  Quality Improvement in EMG and Neuromuscular Medicine
Lyell K. Jones, MD

4:50pm  Quality Improvement in Neurophysiologic Intraoperative Monitoring
Stan Skinner, MD, FACNS

5:10pm  Discussion

Complex EMG Waveforms
Session Director: Devon Rubin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Identify the category of waveform of complex EMG waveforms.
2. Understand the pathophysiology and significance of complex appearing or firing spontaneous EMG waveforms.
3. Determine how complex voluntary motor unit potentials helps to determine the type and temporal course of a neuromuscular disease.

3:45pm  Introduction and Basic Skills to Identify Complex EMG Waveforms
Devon Rubin, MD, FACNS

4:30pm  Interactive Identification of Examples of Complex Waveforms - Understanding What It is And What It Means
Devon Rubin, MD, FACNS
**Annual Meeting Scientific Program**

**THURSDAY, JANUARY 27, 2022**

### Current Research in Neurophysiologic Intraoperative Monitoring

Session Co-Directors: Michael McGarvey, MD, FACNS and Aditya Joshi, MD

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Discuss the findings of the research papers presented and critically evaluate the findings of the papers presented.
2. Describe areas of further research to aid the field of NIOM.

3:45pm Paper 1  
*Michael McGarvey, MD, FACNS*

4:15pm Paper 2  
*Aditya Joshi, MD*

4:45pm Paper 3  
*Stan Skinner, MD, FACNS*

### SEEG in Posterior Cortex Epilepsy (Joint ACNS/Sociedad Española de Neurofisiología Clínica (SENFC) Symposium)

Session Director: Stephan Schuele, MD, MPH, FACNS, FAAN

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Define the various types of Posterior Cortex Epilepsy (PCE) Syndromes and their presentation.
2. Discuss common etiologies and strategies to explore PCE in adults using SEEG.
3. Discuss common etiologies and strategies to explore PCE in children using SEEG.

3:45pm SEEG in Posterior Cortex Epilepsy (Joint ACNS/Sociedad Española de Neurofisiología Clínica (SENFC) Symposium)  
*Victoria Fernández, MD, PhD*

4:15pm Peculiarities of Posterior Cortex Epilepsy in pediatric patients  
*Marta García-Fernández, MD*

4:45pm Stereo EEG evaluation in adult patients with Posterior Cortex Epilepsy  
*Arturo Ugalde-Canitrot, MD, PhD*

### Sleep and Circadian Neurophysiology: Principles & Practice

Session Co-Directors: Milena Pavlova, MD and Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Demonstrate how circadian rhythms can assess and interact with sleep.
2. Delineate existing and emerging methods for assessing sleep and circadian rhythms from EEG.
3. Apply principles of circadian neurophysiology in a real-life practice environment.

3:45pm Neurophysiological principles of circadian rhythms: Assessment and interaction with sleep  
*Milena Pavlova, MD*

### JOIN DR. SUZETTE M. LAROCHE AND THE ACNS COUNCIL IN TOASTING TO THE 75TH ANNIVERSARY OF ACNS!

Give75 donors are invited to join Council in a champagne toast in the exhibit hall.

To donate to the ACNS Strategic Fund's Give75 campaign, visit [https://www.acns.org/donate/support-acns](https://www.acns.org/donate/support-acns)
Annual Meeting Scientific Program

THURSDAY, JANUARY 27, 2022

5:30 - 7:00pm  GENERAL SESSION

5:30pm  Presentation of the 2021 Cosimo-Ajmone Marsan Award
   Aatif M. Husain, MD, FACNS
   JCN Editor-in-Chief

5:45pm  Presentation of the Young Investigator Travel Awards
   Pegah Afra, MD, FACNS and Elizabeth Gerard, MD, FANCS
   Program Committee Co-Chairs

6:00pm  Introduction of the ACNS President

6:10pm  Presidential Address
   Suzette M. LaRoche, MD, FACNS

7:00 – 8:30pm  WELCOME RECEPTION

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### EEG Activation Methods Revisited

**Session Director:** Jayant N. Acharya, MD, DM, FACNS, FAES, FAAN

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Describe the role and controversies of hyperventilation as an EEG activating method.
2. Discuss the mechanisms of photic stimulation induced epileptic activity.
3. Understand and apply the mechanisms for sleep and sleep deprivation to enhance epileptiform activity on EEG.

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>8:30 am</td>
<td>Hyperventilation: Methods, Effects, Controversies and Updates</td>
<td>Jayant N. Acharya, MD, DM, FACNS, FAES, FAAN</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Photic Stimulation: Methods, Effects on EEG and Mechanisms of Activation</td>
<td>Robert Fisher, MD, PhD</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Sleep and EEG: Mechanisms and Means of Activation</td>
<td>William O. Tatum, IV, DO, FACNS</td>
</tr>
</tbody>
</table>

### Mentorship in Clinical Neurophysiology

**Session Co-Directors:** Ioannis Karakis, MD, PhD, MSc, FACNS and Lynn Liu, MD, FACNS

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. List the key elements of being a good mentor at an individual level.
2. Describe the key elements of being a good mentor at a group level.
3. Identify traits of an appropriate mentor and be a successful mentee.

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</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>Traditional 1:1 Mentoring</td>
<td>Roy Hamilton, MD, FAAN, FANA</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Group Mentoring and Teams Science</td>
<td>Lawrence J. Hirsch, MD, FACNS</td>
</tr>
<tr>
<td>9:30 am</td>
<td>How to Identify the Right Mentor and be a Successful Mentee</td>
<td>Monica Dhakar, MD, MS, FACNS</td>
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</table>

### Polysomnography (PSG) Through the Ages: Specific Considerations and Caveats in Different Age Groups (Joint ACNS/Brazilian Clinical Neurophysiology Society Symposium)

**Session Director:** Stella Marcia Azevedo Tavares, MD, PhD

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Describe the normal evolution of sleep (ontogenesis) and recognize normal PSG patterns in children.
2. Describe the normal evolution of sleep (ontogenesis) and recognize normal PSG patterns in adults and elderly.
3. Identify the main technical difficulties for PSG across different age periods in humans.

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</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>Polysomnography in the Elderly</td>
<td>Stella Marcia Azevedo Tavares, MD, PhD</td>
</tr>
<tr>
<td>9:00 am</td>
<td>Polysomnography in Adults</td>
<td>Milena Pavlova, MD</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Polysomnography in Children</td>
<td>Rosana Cardoso Alves, MD</td>
</tr>
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</table>
Annual Meeting Scientific Program

FRIDAY, JANUARY 28, 2022

10:30am - 12:00pm  CONCURRENT SESSIONS

Burnout from the Perspective of the Clinical Neurophysiologist: The Pathophysiology, Experience, and Prevention of a Modern Medical Epidemic
Session Co-Directors: Cormac O’Donovan, MD, FRCPI, FACNS and Matthew Luedke, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the pathophysiology of burnout and its relevant clinical neurophysiologic, imaging, and laboratory biomarkers.
2. Describe causes of burnout and the deleterious impact of burnout on clinicians, their patients, and the broader social impact of clinician burnout.
3. Identify and implement common strategies for reducing burnout and improving clinician resiliency.

10:30am  Biomarkers of Burnout – Neurophysiology, Radiology, and Chemistry
Cormac O’Donovan, MD, FRCPI, FACNS

11:05am  Burnout in the Patient, the Clinician, and Society
Zabeen Mahulwala, MD

11:35am  Leadership and Burnout—Improving Practice, Strengthening Providers
Matthew Luedke, MD, FACNS

Clinical Neurophysiology Resident and Fellow Special Interest Group
Session Co-Directors: Pegah Afra, MD, FACNS and Jeffrey W. Britton, MD, FACNS, FAAN, FANA, FAES

This session will feature case presentations by clinical neurophysiology trainees, selected by the ACNS Resident & Fellow Education Committee from submitted case abstracts.

10:30am  Electric Source Imaging: Current Status of EEG Source Modeling in Localization of Epilepsy
Session Co-Directors: John Ebersole, MD and Prachi Parikh, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the concepts of electric source imaging (ESI).
2. Assess the utility of using source modeling in localization of epilepsy.
3. Analyze the application of ESI in scalp and intracranial EEG as well as about ictal ESI.

10:30am  Fundamentals of EEG Source Modeling
John Ebersole, MD

11:00am  Intracranial EEG Validation of EEG Source Models
James Tao, MD, PhD

11:30am  Ictal EEG Source Modeling
Robert Knowlton, MD

Integrating EMG/NCS into Clinical Practice
Session Director: Daniel L. Menkes, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Distinguish between common mononeuropathies, plexopathies and radiculopathies clinically.
2. Describe the relative frequencies of these entities in order to design a tailored electrodiagnostic examination.
3. Apply proper phraseology to summarize the study’s findings.

10:30am  Introduction
Daniel L. Menkes, MD, FACNS

10:35am  EMG in the Diagnosis of Neuropathy
Peter Siao Tick Chong

11:00am  Ultrasound as a Complement to EMG
Michael Cartwright, MD

11:30am  The Role of EMG in Radiculopathy/Spinal Stenosis
Mick J. Perez-Cruet, MD

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### Evidence II: Challenges in the Establishment of IONM Effectiveness

**Session Co-Directors:** Stan Skinner, MD, FACS and David MacDonald, MD

**Learning Objectives:**
1. Define Big Data pros and cons as IONM evidence.
2. Describe how IONM methods differ from typical diagnostic tests.
3. Explain the need for proactive collaboration between all intraoperative team members to generate the best patient outcomes.

<table>
<thead>
<tr>
<th>Time</th>
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<th>Description</th>
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<tbody>
<tr>
<td>1:00pm</td>
<td>Stan Skinner, MD, FACS</td>
<td>Teamwork: The Linchpin between Diagnostic Prediction and Injury</td>
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<tr>
<td>1:30pm</td>
<td>Ana Mirallave-Pescador, MD</td>
<td>Risk assessment in machine learning and Big Data: challenges and solutions.</td>
</tr>
<tr>
<td>2:00pm</td>
<td>David MacDonald, MD</td>
<td>Why 2x2 Diagnostic Test Accuracy is Inappropriate for IONM</td>
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### Neurophysiology through COVID-19 Pandemic (Joint ACNS/Mexican Clinical Neurophysiology Society Symposium)

**Session Director:** Alejandro Zavala, MD, FACNS

**Learning Objectives:**
1. Describe the most frequent findings in the EEG of COVID-19 Patients.
2. Identify the most frequent findings in nerve conduction studies of COVID-19 Patients.
3. Analyze how the COVID-19 pandemic has changed the IOM.

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:00pm</td>
<td>Alejandro Zavala, MD, FACNS</td>
<td>EEG in COVID-19 Patients</td>
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<tr>
<td>1:30pm</td>
<td>Samantha Pineda, MD</td>
<td>Nerve Conduction Studies in COVID-19 Patients</td>
</tr>
<tr>
<td>2:00pm</td>
<td>Jaime R. López, MD, FACNS</td>
<td>Changes in IOM during COVID-19 Pandemic</td>
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**Step Wise Approach to Epilepsy Surgical Planning - For Residents and Fellows**
Session Director: Iffat Ara Suchita, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Demonstrate the organized and stepwise approach to epilepsy surgery planning.
2. Conduct education on temporal, extra-temporal sEEG planning.
3. Learn about various neuromodulation devices, as palliative options.

1:00pm Case Block A
*Hae Won Shin, MD*

1:25pm Case Block B
*Elson So, MD, FACNS*

1:50pm Case Block C
*Iffat Ara Suchita, MD*

2:05pm Case Block D
*Lily Wong-Kisiel, MD*

**What Have We Learned About the Physiology of Neuromuscular Junction with a Human Model of Presynaptic Dysfunction: Botulinum Toxin Chemodenervation**
Session Director: Renato Verdugo, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Recognize and describe the effects of botulinum toxin at the level of the central and peripheral nervous system.
2. Describe the main neurophysiological techniques available to evaluate the effects of botulinum toxin at the central and peripheral levels.
3. Describe chronologically the denervation-reinervation process that occurs after chemodenervation with botulinum toxin.

1:00pm Findings in EMG, SFEMG, Sensory and Motor Nerve Conduction Studies, Repetitive Stimulation Test, H Reflexes, F Waves and Blink Reflex
*TBD*

1:30pm The Presynaptic, Synaptic, Postsynaptic, Muscular and Central Effects of Chemodenervation with Botulinum Toxin
*Gustavo E. Ramos Burbano, MD, MSci*

2:00pm Chronology of the Denervation-Reinervation Process after Chemodenervation with Botulinum Toxin
*Marcondes Franca Jr, MD, PhD*

2:30 – 3:00pm BREAK
### Annual Courses

**FRIDAY, JANUARY 28, 2022**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Course Co-Directors</th>
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<tbody>
<tr>
<td>3:00 - 5:00pm</td>
<td><strong>ANNUAL COURSES… CONTINUED</strong></td>
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<tr>
<td>3:00pm - 5:00pm</td>
<td><strong>EMG/Peripheral - Part II</strong></td>
<td>Devon Rubin, MD, FACNS and Ruple Laughlin, MD, FACNS</td>
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<td>3:00pm</td>
<td>EDX in NMJ d/o</td>
<td>Ruple Laughlin, MD, FACNS</td>
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<td>3:40pm</td>
<td>EDX Approach to Plexopathies</td>
<td>Sarah Berini, MD</td>
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<td>4:20pm</td>
<td>EDX Approach to Myopathies</td>
<td>Pritikanta Paul</td>
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<td>4:50pm</td>
<td>Discussion</td>
<td>Ruple Laughlin, MD, FACNS</td>
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<td>Sarah Berini, MD</td>
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<td>Pritikanta Paul</td>
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<td>3:00pm - 5:00pm</td>
<td><strong>Evoked Potentials</strong></td>
<td>Elayna Rubens, MD, FACNS and Viet Nguyen, MD</td>
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<td>3:00pm</td>
<td>Brainstem Auditory Evoked Potentials</td>
<td>Alan D. Legatt, MD, PhD, FACNS</td>
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<td>3:40pm</td>
<td>Visual Evoked Potentials</td>
<td>Armando Tello, MD, PhD</td>
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<td>4:20pm</td>
<td>Somatosensory Evoked Potentials</td>
<td>Viet Nguyen, MD</td>
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<td>3:00pm - 5:00pm</td>
<td><strong>Essentials of Sleep for the Busy Clinical Neurophysiologist</strong></td>
<td>Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS and Lynn Liu, MD, FACNS</td>
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<td>3:00pm</td>
<td>Sleep-Wake States, Arousals, and Parasomnias</td>
<td>Milena Pavlova, MD</td>
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<td>3:30pm</td>
<td>Sleep and Respiratory Scoring</td>
<td>Nancy Foldvary-Schaefer, DO</td>
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<td>4:00pm</td>
<td>Sleep-Related Movements: RBD, Atonia, PLMS</td>
<td>Madeleine M. Grigg-Damberger, MD, FACNS</td>
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<td>4:30pm</td>
<td>Interactive Sleep Cases</td>
<td>Milena Pavlova, MD</td>
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<td>Nancy Foldvary-Schaefer, DO</td>
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<td>3:00am - 5:00pm</td>
<td><strong>Neonatal EEG</strong></td>
<td>Shavonne L. Massey, MD and William Gallentine, DO, MD, FACNS</td>
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<td>3:00pm</td>
<td>EEG Maturational Changes of the Preterm Infant</td>
<td>Courtney J. Wusthoff, MD, MS, FACNS</td>
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<td>3:30pm</td>
<td>EEG Recording Techniques (AEEG vs. Conventional EEG) and Artifacts in Premature Infants</td>
<td>Janette Mailo, MD, PhD</td>
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<td>4:00pm</td>
<td>Neonatal Seizures: ictal EEG Patterns, Do They Matter, and How Do We Treat</td>
<td>Dana B. Harrar, MD, PhD</td>
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<td>4:30pm</td>
<td>Prognostic Value of EEG in Very Premature Infants</td>
<td>Robert Ryan Clancy, MD</td>
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FRIDAY, JANUARY 28, 2022

3:00pm - 5:00pm

Neuromodulation
Course Co-Directors: Gregory Worrell, MD, PhD and Alexander Rotenberg, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:

3:00pm RNS
   Barbara Jobst, MD, FACNS

3:25pm DBS & Targets
   Nicholas M. Gregg, MD

3:45pm Discussion: Invasive Neurostimulation
   Barbara Jobst, MD, FACNS
   Nicholas M. Gregg, MD

4:00pm TMS
   Melissa Tsuboyama, MD

4:25pm Trigeminal Nerve Stimulation
   Christopher DeGiorgio, MD

4:45pm Discussion: Non-invasive Neurostimulation
   Melissa Tsuboyama, MD
   Christopher DeGiorgio, MD

LS = livestreamed  OD = On-demand  ES = Spanish language
Critical Care EEG: Current Concepts and Case Discussion/ Electroencefalograma continuo en cuidados criticos: 
Sesson Co-Directors: Camilo Gutierrez, MD and Maria J. Bruzzone Giraldez, MD, MSCR

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the 2021 ICU EEG terminology, and describe the new components.
2. Identify common management approaches to CCEEG findings.
3. Describe the indications and optimal length of cEEG monitoring in critically ill adults.

Growing and Adding Services to the Epilepsy Services: Adding Value Within and Beyond the Four Walls of Epilepsy Centers
Sesson Co-Directors: Rajdeep Singh, MD, MS, FACS and Matthew Luedke, MD, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Implement and improve telemedicine clinic visits in epilepsy and neurology.
2. Illustrate the utilization of epilepsy navigators within epilepsy centers to improve patient care.
3. Assess and increase utilization of EEG technician services within their centers to meet coding guidelines, help with physician burnout and improve patient care.

Neurophysiology of Functional Neurologic Disorders
Sesson Co-Directors: Mark Hallett, MD, DM (hon), FACS and Adriana Bermeo-Ovalle, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the current knowledge regarding functional connectivity abnormalities in patients with functional seizures.
2. Recognize the use of quantitative analysis of Surface EMG in Functional seizures.
3. Identify neurophysiological tools in the diagnosis of Functional Tremor.

SEEG Implantation Strategy to Confirm Epileptogenic Zone Hypothesis: Illustrative Case Discussions
Session Director: Jun T. Park, MD, FAES, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the concepts of SEEG.
2. Describe the indications of SEEG in adults and children.
3. Apply the technique in selected patients with drug resistant focal epilepsy.

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**Annual Meeting Scientific Program**

**SATURDAY, JANUARY 29, 2022**

**The Power of Social Media in Shaping the Future of Clinical Neurophysiology Education**
Session Co-Directors: Meriem Bensalem-Owen, MD, FACNS and Aatif M. Husain, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the current use of social media in clinical neurophysiology (CNP) education.
2. Review the various format of social media used and educational content delivered.
3. Discuss the challenges and the opportunities offered by social media for CNP education.

8:00am Introduction
Meriem Bensalem-Owen, MD, FACNS

8:05am Perspective from the Social Media Editor of the Journal of Clinical Neurophysiology
Rishi Ganesan, MD

8:30am #TwEEGtorial
Rebecca Fasano, MD

8:55am #EEGTalk
Fabio Nascimento, MD

9:20am Panel Discussion

9:30 – 10:00am BREAK

**10:00 – 11:30am GENERAL SESSION**

Session Chair: Robert S. Schwab Award Presentation

10:00am Robert S. Schwab Award Lecture: “Eat, Drink, and Be Numb”
Eva L. Feldman, MD, PhD

10:45am ACNS Members’ Business Meeting

**11:30am – 12:30pm Lunch**

**12:30pm - 2:00pm CONCURRENT SESSIONS**

**Epileptic Encephalopathies Across the Pediatric Spectrum – EEG Utilization in Diagnosis and Management**
Sesson Co-Directors: Shavonne L. Massey, MD and Janette Mailo, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain how conventional EEG can be utilized in diagnosis of epileptic encephalopathy in neonates and children.
2. Discuss how QEEG can supplement conventional EEG seizure detection and prediction value in critically ill neonates and children.
3. Identify the role of ambulatory EEG in pediatric patients with seizures and encephalopathy.

12:30pm Introduction into Epileptic Encephalopathies Across the Pediatric Spectrum – EEG Utilization in Diagnosis and Management
France Fung, MD

12:45pm Neonatal Epileptic Encephalopathies
Chalongchai Phitsanuwong, MD

1:10pm Role of the Continuous EEG, Quantitative EEG Trends and Ambulatory EEG in Diagnosis and Assessment of Epileptic Encephalopathy in Pediatric Patients
Eric Payne, MD

1:50pm Panel Discussion

**My Patient’s Dizzy. Now what? A Clinical Approach to the Diagnosis and Management of Autonomic Disorders**
Session Director: Mitchell G. Miglis, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Interpret the results of autonomic cardiovascular reflex testing including heart rate variability with deep breathing, Valsalva maneuver and head up tilt testing in the setting of clinical cases.
2. Define typical presentations of disorders of autonomic hyperactivity and autonomic failure.
3. Recognize patterns on thermoregulatory sweat testing associated with disorders of central and peripheral autonomic pathways.

12:30pm Disorders of Autonomic Hyperactivity: Syncope and POTS
Mitchell G. Miglis, MD

12:55pm Disorders of Autonomic Failure and the Utility of Sweat Testing in Clinical Practice.
Dong-Inn Sinn, MD

1:20pm Autoimmune Autonomic Syndromes and Future Autonomic Measures
Srikanth Muppidi, MD

1:45pm Discussion

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Annual Meeting Scientific Program

SATURDAY, JANUARY 29, 2022

New Insights in Intraoperative Neurophysiology for Urological Surgeries
Session Director: Jaime R. López, MD, FACNS and Ignacio Regidor, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain basic neuropysiological techniques applied for pelvic floor examination and their interpretation.
2. Describe the particularities of the intraoperative neurophysiological monitoring in radical prostatectomies.
3. List different intraoperative neurophysiological monitoring techniques used in multimodal IOM in pudendal nerve release surgeries.

12:30pm Neurophysiological Studies of the Pelvic Floor
Armando Tello, MD, PhD

1:00pm Intraoperative Neurophysiological Monitoring for Prostate Surgeries
Guillermo Martín-Palomeque, MD, FACNS

1:30pm Intraoperative Neurophysiological Monitoring in Pudendal Nerve Entrapment Surgery
Lidia Cabañes-Martínez, MD, FACNS

Normal Features of the Intracranial EEG
Session Director: Vasileios Kokkinos, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the regional differences in intracranial EEG with respect to brain location and their associated changes with the sleep–wake state.
2. Discuss the regional variability of electrophysiological activity across the human brain and its modification through the different states of vigilance.
3. Identify normal iEEG waveforms generated by the human hippocampus.

12:30pm Modeling and Visualization of the Intracranial EEG
Giridhar Kalamangalam, MD, DPhil, FACNS

1:00pm An Electrical Atlas of the Human Brain: A Multicenter Effort to Shed Light into Brain Physiology
Birgit Frauscher, MD, PhD

1:30pm Normal Intracranial EEG Variants of the Human Hippocampus
Vasileios Kokkinos, PhD

The Role of Neurophysiology in the Evaluation of Patients with Epilepsy and Low Grade Gliomas
Session Co-Directors: Adriana Tanner, MD, FAES and Luis-Carlos Mayor, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the presurgical evaluation of patients with epilepsy and low grade gliomas.
2. Discuss the indications for invasive evaluation in patients with epilepsy and low grade gliomas.
3. Discuss intraoperative techniques and their pros and cons in patients with epilepsy and low grade gliomas.

12:30pm The Non-Invasive Evaluation of Patients with Epilepsy and Low Grade Gliomas
Juan Ochoa, MD, FACNS

12:55pm The Invasive Evaluation in Patients with Epilepsy in the Setting of Low Grade Gliomas
Julia Miró-Lladó, MD

1:20pm Low Grade Gliomas and Epilepsy: The Role of the Neurophysiologist in the Operating Room
Adriana Tanner, MD, FAES

1:45pm Discussion

2:00 – 2:30pm BREAK

2:30 – 4:00pm CONCURRENT SESSIONS

Challenging EMG Cases: Solving the Puzzle
Session Director: Ruple Laughlin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define nerve conduction features distinguishing a demyelinating from axonal neuropathy.
2. Identify electrodiagnostic techniques to assess and localize ulnar neuropathy.
3. Formulate a step-wise approach in the EDX evaluation of weakness.

2:30pm Challenging EMG Cases
Ruple Laughlin, MD, FANCS

3:15pm Challenging EMG Cases
Devon Rubin, MD, FACNS

3:15pm Challenging EMG Cases
Devon Rubin, MD, FACNS

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Does EEG-Video Monitoring Still Need to be done in the Inpatient Setting? Hospital vs. Ambulatory EEG-Video
Session Director: Selim Benbadis, MD, FACNS
Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the advantages and disadvantages of inpatient EEG-video monitoring.
2. Describe the advantages and disadvantages of ambulatory EEG-video monitoring.
3. Apply the CPT codes appropriately for inpatient and ambulatory EEG-video monitoring.

2:30pm EEG-Video Monitoring Should Be Performed In The Hospital
Meriem Bensalem-Owen, MD, FACNS

2:50pm Ambulatory EEG-Video Can Be Just as Good as Inpatient EEG-Video
Selim Benbadis, MD, FACNS

3:10pm Coding Implications of Inpatient vs. Ambulatory EEG-Video
Marc R. Nuwer, MD, PhD, FACNS

3:30pm Discussion

Use of Long-Term Video EEG Monitoring in Low-Income Countries: Challenges and Limitations (Joint ACNS/IFCN-Latin American Chapter Symposium) 
Session Co-Directors: Daniel San Juan Orta, MD, MSc, FACNS and Jorge Vidaurre, MD, FACNS, FAES
Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Review the state of art of the EEG features of interictal-ictal continuum phenomena in children.
2. Review Key EEG features of the interictal-ictal spectrum in the intensive care unit setting with unique challenges of this specific environment.
3. Discuss characteristics of interictal –ictal continuum in patients with super refractory status and multimodal diagnosis tests.

2:30pm Can we Implement Long-Term Video EEG Monitoring Programs in Low-Income Countries: Limitations and Possible Solutions
Jorge Vidaurre, MD, FACNS, FAES

3:00pm Practical Applications of EEG Monitoring in an in a Large Center in Mexico: Are we Modifying Outcomes?
Daniel San Juan Orta, MD, MSc, FACNS

3:30pm Implementation of ICU Telemetry in Latin America: The Colombian Experience
Luis-Carlos Mayor, MD

Intraoperative Monitoring of Lower Cranial Nerves
Session Co-Directors: Pegah Afra, MD, FACNS and Steve Karceski, MD
Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the surgical anatomy and neurophysiology of lower cranial nerves.
2. Explain the peripheral lower cranial nerve monitoring during head and neck surgeries.
3. Describe the hypoglossal nerve monitoring during placement of hypoglossal stimulator.

2:30pm The Surgical Anatomy and Neurophysiology of Lower Cranial Nerves
Pegah Afra, MD, FACNS

3:00pm Intraoperative neurophysiologic monitoring of lower cranial nerves during head and neck surgeries
Joseph Doria, MD

3:30pm Intraoperative monitoring of lower cranial nerves during placement of hypoglossal stimulator
Oleg Modik, PhD, CNIM
New Insights Sleep Neurophysiology Providing About Complex Bidirectional Effects in Focal-Onset Epilepsies

Session Director: Madeleine M. Grigg-Damberger, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain why NREM sleep may be the best sleep/wake state to identify the epileptogenic zone for epilepsy surgery evaluations using interictal stereo-EEG.
2. Discuss how recording stereo-EEG and comprehensive respiratory polysomnography shows respiratory events accompany the majority of seizures in the majority of patients with focal-onset epilepsy undergoing epilepsy surgery evaluation.
3. Explain why half of adults with focal-onset epilepsy show pathologic objective sleepiness on the Multiple Sleep Latency Test and pathologic impaired wakefulness and attention on the Maintenance of Wakefulness tests.

2:30pm Objective Pathological Sleepiness and Difficulty Staying Awake and Alert Highly Prevalent in Unselected Adults with Focal-Onset Epilepsies
Madeleine M. Grigg-Damberger, MD, FACNS

2:55pm Roles of Sleep and Apnea In Sudden Unexpected Death In Epilepsy (SUDEP) Risk.
Nancy Foldvary-Schaefer, DO

3:15pm Contribution of Sleep to Better Define the Epileptic Focus and Post-Surgical Outcome
Birgit Frauscher, MD, PhD

3:35pm Discussion

4:30 – 6:00pm GENERAL SESSION

Session Chair:
4:30pm Herbert H. Jasper Award Presentation
4:40pm Herbert H. Jasper Award Lecture: “The Electroencephalogram of the Developing Brain”
Eli M. Mizrahi, MD, FACNS

5:15pm Pierre Gloor Award Presentation
5:25pm Pierre Gloor Award Lecture: “Transcranial Stimulation: Which Method for Which Purpose”
Walter Paulus, MD
Annual Meeting Scientific Program

SUNDAY, JANUARY 30, 2022

8:00 - 11:30am  Fostering Diversity in Clinical Neurophysiology

Session Co-Directors: Sarah E. Schmitt, MD, FACS and Sasha Alick-Lindstrom, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Identify the current issues regarding lack of diversity in leadership in Neurology and Clinical Neurophysiology, and describe the importance of cultural competency in interactions with colleagues and patients.
2. Describe measures that can be utilized to overcome challenges encountered by minorities and women in career advancement, including strategies for balancing family and career obligation and improving work-life balance.
3. Increase personal involvement and engagement in ACNS and provide opportunities to shape the future of ACNS as a society that promotes diversity and inclusivity for ALL healthcare professionals in neurophysiology.

The presentations from 8:30 - 9:45am will be live-streamed. The roundtable discussions at 10:00am will be open to in-person attendees only.

8:30am  Introduction
Sarah E. Schmitt, MD, FACS

8:35am  Equity, Diversity and Inclusion Lessons in Neurology
Ima Ebong, MD

9:05am  Ethnic Diversity and Disparities in Healthcare
Daniel J. Correa, MD, MS

9:30am  Closing the Gender Gap: Strategies for Successfully Navigating an Academic Career
Page Pennell, MD

10:00am  Roundtable Discussions:
Finding an Appropriate Work-Life Balance
Sasha Alick-Lindstrom, MD
Hiba A. Haider, MD, FACS, FAES

Finding Mentorship and Support Locally and Nationally
Sarah E. Schmitt, MD, FACS
Susan T. Herman, MD, FACS

Promoting Diversity within Your Institution
Daniel J. Correa, MD, MS
Ima Ebong, MD

Obtaining Recognition within Your Professional Society
Suzette LaRoche, MD, FACS
Page Pennell, MD

8:00 - 9:30am  CONCURRENT SESSIONS

Computational Approaches to Epilepsy
Session Co-Directors: Rod C. Scott, MD, PhD and Giridhar Kalamangalam, MD, DPhil, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the characteristics of a complex adaptive system and to contrast reductionist approaches with complexity approaches to understanding such systems.
2. Define network structures at multiple hierarchical levels and discuss how these structures per se are mechanisms of disease.
3. Explain how networks at multiple hierarchical levels can be manipulated in order to reduce seizure propensity and to improve cognitive outcomes.

8:00am  The Promise of Complexity Theory
Matt Mahoney, PhD

8:30am  Single Unit Electrophysiology to Study Abnormal Microcircuits in Epilepsy
Rod C. Scott, MD, PhD

9:00am  Spatiotemporal Patterns of EEG as Mechanisms in Epilepsy
Giridhar Kalamangalam, MD, DPhil, FACS

The Post Sub-Specialization Era: Board Certification, Credentialing and Getting Reimbursed
Session Co-Directors: Pegah Afra, MD, FACS and Matthew Luedke, MD, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the difference between ABMS and non-ABMS board examinations in CNP and understand variety pf board certifications available for subspecialty of CNP,
2. Explain the credentialing process for clinical neurophysiologists,
3. Discuss the difference between privileges and credentials,

8:00am  Board Certification in Clinical Neurophysiology: ABMS, ABPN, ABCN, AANEM, CSCN. Who are They and What are Their Roles?
Pegah Afra, MD, FACS

8:30am  Credentialing Process for Clinical Neurophysiologists
Matthew Luedke, MD, FACS

9:00am  Credentialing Process for Neurodiagnostic Technologists
Jaime R. Lopez, MD, FACS

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The Role of cEEG, qEEG and Evoked Potentials in Acutely Encephalopathic Children and Neonates: From Seizures to Persistent Vegetative State, and Everything in Between

Session Co-Directors: France Fung, MD and Janette Mailo, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe QEEG trends (trend changes, seizure detection, artifacts) that can be seen in encephalopathic pediatric and neonatal patients in the ICU.
2. Recognize the utility of neurophysiologic and evoked potential techniques in assessment of neonates and children with encephalopathy in pediatric and neonatal ICU.
3. Assess the strengths, weaknesses and optimal timing of various neurophysiological modalities used in the evaluation of critically ill neonates and children.

8:00am Introduction
Shavonne L. Massey, MD

8:15am The Role of Evoked Potential Modalities in Assessment of Cerebral Function in Critically Ill Neonates and Children with Altered Awareness
Janette Mailo, MD, PhD

8:45am EEG/QEEG in the NICU and PICU
Rejean Guerriero, DO

8:45am Discussion

10:00 - 11:30am CONCURRENT SESSIONS

Clinical Neurophysiology of Encephalopathy: Grading, Patterns, and Outcome.
Session Director: Aline Herlopian, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the grading system of encephalopathy.
2. Recognize the different patterns associated with encephalopathy.
3. Identify various entities with their characteristic encephalopathy patterns and strategize therapeutic interventions that impact clinical outcomes.

10:00am Introduction
Aline Herlopian, MD

10:05am Grading of Encephalopathy
Brandon Westover, MD, PhD

10:25am Ictal-Interictal Continuum and Encephalopathy
Aaron Struck, MD

10:45am EEG Findings in Specific Etiologies of Encephalopathy
Aline Herlopian, MD

11:05am Interactive Cases
Aline Herlopian, MD

Deep Brain Stimulation (DBS) in Epilepsy
Session Director: Gregory Worrell, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define the historical DBS targets in epilepsy and define the evidence that support these targets.
2. Describe DBS targets for focal epilepsy and FDA approval of the targets.
3. List DBS targets in generalized epilepsy and outcome data to support these targets.

10:00am DBS in Generalized Epilepsy
Abdulrahman Alwaki, MD

10:30am Choosing The Targets: Historical Overview
Robert Gross, MD, PhD

11:00am DBS in Focal Epilepsy
Gregory Worrell, MD, PhD

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Unique Methods of TceMEPs Acquisition in Complex Cases in Adult and Pediatric Surgical Patients
Session Director: Bernard A. Cohen, PhD, FASNM, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe LQP-TceMEP stimulating electrode arrangements and corresponding optimal placement site to get a higher density of intensity of stimulation delivered to the scalp.
2. Identify the value LQP-TceMEP-technique play during the surgical procedure using low threshold stimulation compare to conventional stimulation.
3. Conduct LQP-TceMEP-technique during a surgical procedure where patient’s age, lesion location, and preoperative neurologic deficit could have degraded MEPs monitoring feasibility.

10:00am  LQP-TceMEP Technique: Historical Background and Current Scientific Research Directions
Bernard A. Cohen, PhD, FASNM, FACNS

10:30am  Optimizing and Improving Continuous TceMEP Monitoring by Using Low Threshold Linked Quadri-Polar (LQP)-TceMEP in Adult Surgical Patients
Ernesto Lima, MD, CNIM, D.ABNM

11:00am  Facilitating Pediatric TceMEP Recordings to Approximate Real Time Surgical Feedback
Vizmary J. Montes-Pena, MD, MS
Preliminary Program

2022 ACNS Annual Meeting & Courses

Orlando FLORIDA

JANUARY 26–30, 2022 • RENAISSANCE ORLANDO AT SEA WORLD