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Dear Friends & Colleagues,

On behalf of the American Clinical Neurophysiology Society (ACNS) Council, it is my great pleasure to welcome you to the Annual Meeting & Courses.

The Annual Courses, expertly fashioned by Dr. Tobias Loddenkemper and Dr. Saurabh R. Sinha will have commenced on Wednesday, February 8 and as always, will be the best courses one can find on the latest clinical methods in both ICU and Intraoperative Monitoring; peripheral nerve studies; EEG, whether neonatal or invasive; Autonomic Neurophysiology; and in technology and other practical, business updates. This year’s agenda includes extended EMG and Evoked Potentials courses.

The Annual Meeting begins on Friday, February 10 and continues through Sunday, February 12. The Program Committee, led by Dr. Meriem Bensalem-Owen and Dr. Frank W. Drislane, has assembled an impressive array of lectures and symposia on the latest innovations and developments in all forms of Clinical Neurophysiology brought to you from the world’s leading investigators and teachers. The roster of remarkably diverse topics underscores how rapidly our field is expanding. This year’s Joint International Symposia will bring a great new look into Clinical Neurophysiology from around the world, including presentations from IFCN Executive Committee members. The variety of symposia, workshops and Special Interest Groups (SIGs) will provide something for everyone with a strong interest in Clinical Neurophysiology.

The ACNS Council and I want to extend a warm welcome to our international attendees and also to neurophysiology fellows and others new to the meeting. We believe strongly that you will have the opportunity to learn a great deal and to meet some leading clinical neurophysiologists in a small-group setting to discuss very interests insights into the function of the human nervous system.

Jonathan C. Edwards, MD, FACNS
President
Message from Course and Program Committee Co-Chairs

Dear Colleagues,

On behalf of the American Clinical Neurophysiology Society (ACNS) Council, we are thrilled you are attending the 2017 Annual Meeting & Courses.

The ACNS Annual Meeting & Courses are designed to provide a review of the fundamentals as well as the latest scientific advances in central and peripheral neurophysiology. Experts in the field will give presentations of significant value for all healthcare professionals who utilize clinical neurophysiology.

This year, the Annual Courses include expanded offerings in peripheral neurophysiology. Also, the courses are organized along tracks in order to minimize conflicts for most attendees. Due to the continued success of and interest in Neurophysiologic Intraoperative Monitoring (NIOM), the course will remain in the two full-day format to accommodate the degree of growth within this rapidly expanding field of clinical neurophysiology. The course directors have worked hard to provide attendees with an informative and educational series of presentations.

The Program Committee is pleased to present an impressive selection of sessions for delegates to attend throughout the weekend. There was an outstanding set of session proposals submitted for consideration this year and we are confident that the program content will provide an exciting educational opportunity for all in attendance.

Following the success of last year’s Joint International Symposia, we are pleased to include four sessions co-organized by our colleagues outside the US. We are honored to welcome representatives from the Brazilian Society of Clinical Neurophysiology, the Mexican Society of Clinical Neurophysiology, the Latin American Chapter of IFCN, and the German Society of Clinical Neurophysiology. This year also features two sessions with speakers from IFCN Executive Committee Members. We hope you will take advantage of this opportunity to learn from and collaborate with our international colleagues.

In addition to the scientific sessions, there will be opportunities for educational entertainment and networking. The annual Neurophysiologic Bowl provides a great night of “edu-tainment” for participants and attendees to test their knowledge in various fields of Clinical Neurophysiology. Additionally, attendees can socialize and network with exhibitors, colleagues and friends during the Welcome Reception on Friday, February 10 in the Exhibit Hall. Saturday evening will feature a keynote lecture from Phillip Pearl, MD, FACNS titled “Neurology of the Musical Masters”.

The 2017 Annual Meeting & Courses will provide an opportunity for education, networking and interaction with the latest technology for attendees in various fields of clinical neurophysiology. Thank you for joining us in Phoenix!

Sincerely,

Tobias Loddenkemper, MD, FACNS
Course Committee Co-Chair

Saurabh R. Sinha, MD, PhD, FACNS
Course Committee Co-Chair

Meriem Bensalem-Owen, MD, FACNS
Program Committee Co-Chair

Frank W. Drislane, MD, FACNS
Program Committee Co-Chair
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.

Past Presidents

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<thead>
<tr>
<th>Year</th>
<th>Name</th>
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<tr>
<td>1947</td>
<td>*Herbert H. Jasper, MD, PhD</td>
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<td>Susan T. Herman, MD, FACNS</td>
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<td>Aatif M. Husain, MD, FACNS</td>
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<td>William O. Tatum, IV, DO, FACNS</td>
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* Deceased
### ACNS Information

#### Course Committee

| CO-CHAIRS: | Jeffrey Liou, MD  
Harvard Medical School | Asim Shahid, MD  
Rainbow Babies and Children's Hospital |
|------------|------------------|------------------|
| Tobias Loddenkemper, MD, FACNS  
Children's Hospital Boston | Jaime R. López, MD, FACNS  
Stanford University | Mirela V. Simon, MD, FACNS  
Massachusetts General Hospital |
| Saurabh R. Sinha, MD, PhD, FACNS  
Duke University Medical Center | Daniel Menkes, MD, FACNS  
William Beaumont Hospital | Michael R. Sperling, MD, FACNS  
Thomas Jefferson University |
| **MEMBERS:** | Marc R. Nuwer, MD, PhD, FACNS  
UCLA Medical Center | Nitin Tandon, MD  
University of Texas – Houston |
| Selim Benbadis, MD, FACNS  
University of South Florida | Phillip Pearl, MD, FACNS  
Children's Hospital Boston | William O. Tatum, IV, DO, FACNS  
Mayo College of Medicine |
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Emory University | Claus Reinsberger, MD, PhD, FACNS  
University of Paderborn | Tammy Tsuchida, MD, PhD, FACNS  
Children's National Health System |
| Gloria M. Galloway, MD, MBA, FACNS  
Ohio State University Medical Center | Alexander Rotenberg, MD, PhD  
Children's Hospital Boston | M. Brandon Westover, MD, PhD  
Massachusetts General Hospital |
| Cecil D. Hahn, MD, MPH, FACNS  
Hospital for Sick Children | Elayna Rubens, MD, FACNS  
Memorial Sloan Kettering Cancer Center | Courtney J. Wusthoff, MD  
Stanford University |
| Susan T. Herman, MD, FACNS  
Beth Israel Deaconess Medical Center | Devon I. Rubin, MD  
Mayo Clinic | EX-OFFICIO: |
| Lawrence J. Hirsch, MD, FACNS  
Yale University | Seward Rutkove, MD  
Beth Israel Deaconess Medical Center | Meriem Bensalem-Owen, MD, FACNS  
University of Kentucky |
| Aatif M. Husain, MD, FACNS  
Duke University Medical Center | Mark Scher, MD  
Rainbow Babies and Children's Hospital | Jeffrey Britton, MD, FACNS  
Mayo Clinic |
| Ruple Laughlin, MD  
Mayo Clinic | Stephan U. Schuele, MD, MPH, FACNS  
Northwestern University | Frank W. Drislane, MD, FACNS  
Beth Israel Deaconess Medical Center |
| Jong Woo Lee, MD, PhD, FACNS  
Brigham & Women's Hospital | **CME Committee** |

#### CME Committee

| CHAIR: | Charles M. Epstein, MD, FACNS  
Emory University School of Medicine | Tobias Loddenkemper, MD, FACNS  
Children's Hospital Boston |
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| Gloria Galloway, MD, MBA, FACNS | Evan J. Fertig, MD  
Northeast Regional Epilepsy Group | Dipakkumar Pandya, MD  
Hunterson Neurology |
| **MEMBERS:** | Susan T. Herman, MD, FACNS  
Beth Israel Deaconess Medical Center | Mirela V. Simon, MD, FACNS  
Massachusetts General Hospital |
| Nicholas S. Abend, MD, FACNS  
Children's Hospital of Philadelphia | Pongkiat Kankirawatana, MD, FACNS  
Children of Alabama – UAB | Saurabh R. Sinha, MD, PhD, FACNS  
Duke University Medical Center |
| Vinita J. Acharya, MD  
Penn State Hershey Medical Center | Jong Woo Lee, MD, FACNS  
Brigham & Women's Hospital | Christa Swisher, MD  
Duke University Medical Center |
| Meriem Bensalem-Owen, MD, FACNS  
University of Kentucky | | |
| Rohit Das, MD, FACNS  
Indiana University | | |
ACNS Information

Program Committee

**CO-CHAIRS:**
Meriem Bensalem-Owen, MD, FACNS
University of Kentucky
Frank W. Drislane, MD, FACNS
Northwestern University

**MEMBERS:**
Nicholas S. Abend, MD
Children's Hospital of Philadelphia
Imran I. Ali, MD, FACNS
University of Toledo
Salah A. Almubarak, MD, FRCP, FACNS
Royal University Hospital
Anto Bagic, MD, PhD, FACNS
University of Pittsburgh
Richard C. Burgess, MD, FACNS
Cleveland Clinic Epilepsy Center
Bernard Allan Cohen, PhD, FACNS
Neurological Monitoring Associates, LLC
Rafael de Castro, MD
Neurolife Natal
Elliot Dimberg, MD
Mayo Clinic
Jonathan C. Edwards, MD, MBA, FACNS
Medical University of South Carolina
Ronald Emerson, MD, FACNS
Hospital for Special Surgery
William B. Gallentine, DO, FACNS
Duke University Medical Center

Cecil D. Hahn, MD, MPH, FACNS
The Hospital for Sick Children
Mark Hallett, MD, FACNS
National Institutes of Health
Abeer Hani, MD
Duke University Hospital Program
Aatif M. Husain, MD, FACNS
Duke University Medical Center
Akio Ikeda, MD, PhD
Kyoto University Graduate School of Medicine
Adam Juersivich, MD
University of Rochester School of Medicine
Mohammad MI Kabiraj, Sr., MBBS, PhD
Prince Sultan Military Medical City
Ioannis Karakis, MD, MSc
Emory University
Ekrem Kutluay, MD
Medical University of South Carolina
Gowri Lakshminarayan, MD
Stanford University Medical Center
Suzette M. LaRoche, MD, FACNS
Emory University School of Medicine
Jong Woo Lee, MD, PhD, FACNS
Brigham & Women's Hospital
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Stanford University
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University of Michigan Health System
Heidi Munger Clary, MD, MPH
Wake Forest University
Christos Papadelis, PhD
Harvard Medical School
Eva K. Ritzl, MD
Johns Hopkins University
Devon I. Rubin, MD, FACNS
Mayo Clinic
Stephan U. Schuele, MD, MPH, FACNS
Northwestern University
Raj D. Sheth, MD, FACNS
Mayo Clinic / Nemours Clinic-Florida
John Stern, MD
UCLA School of Medicine
William O. Tatum, DO, FACNS
Mayo College of Medicine
Amit Verma, MBBS
The Methodist Hospital
Courtney J. Wusthoff, MD
Stanford University

**EX-OFFICIO:**
Gloria Galloway, MD, MBA, FACNS
Ohio State University
Tobias Loddenkemper, MD, FACNS
Children's Hospital Boston
Saurabh R. Sinha, MD, PhD, FACNS
Duke University Medical Center
General Meeting Information

Registration Desk
Location: Encanto Foyer, Second Level

HOURS:
Tuesday, February 7:  4:00PM – 6:00PM
Wednesday, February 8:  6:00AM – 5:00PM
Thursday February 9:  6:00AM – 5:00PM
Friday, February 10:  6:00AM – 5:00PM
Saturday, February 11:  7:00AM – 5:00PM
Sunday, February 12:  7:30AM – 10:00AM

Mobile App
Download the 2017 ACNS Annual Meeting & Courses mobile app! Available for download in app stores for all mobile devices and tablets. Create your own schedule, search exhibitors, find local information, and more in the mobile app! See page 8 for download instructions.

Internet
Wireless internet access is available to Annual Meeting & Courses delegates throughout the meeting space. To access the internet, use the following network credentials:
Network: SheratonMeetingRooms
Password: phoenix2017

Certificate of Attendance & CME Certificate
CME certificates will be available to pre-registered delegates immediately upon the close of the meeting at www.acns.org. Delegates who registered on-site will receive an email with further information within 3 weeks of the end of the meeting.

Delegates are REQUIRED to complete session evaluations to obtain a CME Certificate or Certificate of Attendance. Delegates should log on to the website listed above and enter their last name and the ID# listed at the top of their Annual Meeting & Courses confirmation form (included in this packet). The system will then ask delegates to indicate which sessions they attended, to complete evaluation forms for each of those sessions, and then will generate a PDF certificate which may be printed or saved to the delegate's computer. Session attendance and evaluation information are saved in the database, and certificates may be accessed again, in the event the certificate is lost or another copy is required.

Please note that certificates will not be mailed or emailed after the meeting. The online certificate program is the only source for this documentation. Please contact ACNS at info@acns.org for any questions. ACNS asks that all CME certificates be claimed no later than April 1, 2017.

Business Meeting
The ACNS Annual Business Meeting will be held in Valley of the Sun Ballroom from 1:30-2:00pm on Saturday, February 11, 2017. This meeting is open to all attendees, but only ACNS Members may vote.

Poster Sessions & Publication of Abstracts
Authors will be present during poster tours between 12:15 – 1:30PM on Friday, February 10 and 12:45 – 1:30PM on Saturday, February 11 for discussion. Poster abstracts and presentation dates can be found in the Poster Abstract Supplement included in registration materials.

FRIDAY, FEBRUARY 10, 2017
10:00 AM – 4:00 PM
Estrella & South Mountain Rooms, Second Level

SATURDAY, FEBRUARY 11, 2017
7:00 AM – 1:30 PM
Estrella & South Mountain Rooms, Second Level

Poster abstracts will be published in the Journal of Clinical Neurophysiology.

Exhibits
Those attending the Annual Meeting are encouraged to visit the Exhibit Hall located in Encanto Ballroom. All meals and coffee breaks on Friday, February 10 and Saturday, February 11 will be held in the Exhibit Hall. Exhibit Hall hours are listed below:

FRIDAY, FEBRUARY 10, 2017
10:00AM – 4:00PM  Exhibit Hall Open
10:00 – 10:30AM  Coffee Break
12:15 – 1:30PM  Lunch
3:30 – 4:00PM  Coffee Break
7:00 – 8:30PM  Welcome Reception

SATURDAY, FEBRUARY 11, 2017
7:00AM – 1:30PM  Exhibit Hall Open
7:00 – 8:00AM  Continental Breakfast
9:30 – 10:00AM  Coffee Break
12:45 – 1:30PM  Lunch
Sheraton Grand Phoenix Floorplan

Download the ACNS Annual Meeting & Courses App!

GET THE APP
1. Go the right store. Access the App Store on iOS devices and the Play Store on Android.
2. Install the app. Search for “ACNS Annual Meeting.” Once you’ve found the app, tap either Download or Install.

OR
1. Open the browser on your phone or tablet,
2. Enter the app URL - https://crowd.cc/s/pqeU - to be redirected to the correct App Store to install the app.

After installing, a new icon will appear on the homescreen.
Nearby Restaurants

Fast-Casual Options

**AMERICAN**
Bowl of Greens
555 N Central Avenue
602.795.9710

Chick-Fil-A Express
Taylor Place, 120 E Taylor Street
602.496.6715

Corner Bakery Café
455 N 3rd Street
602.252.1346

Crave Sandwich Café & Catering
541 E Van Buren Street
602.257.1616

Einstein Bros
Hyatt Regency Phoenix
122 N 2nd Street, Hotel Lobby
602.440.3185

**CHINESE**
Hsin Cafe (W)
120 E Taylor Street #150
602.254.6337

**MEXICAN/SOUTHWESTERN**
Canyon Cafe
455 N 3rd Street #114
602.252.3545

Mi Amigos
455 N 3rd Street #150
602.256.7355

Fine Dining Options

**AMERICAN**
Angels Trumpet Ale House
810 N 2nd Street
602.252.2630

The Arrogant Butcher
CityScape
2 E Jefferson Street, #22-111
602.324.8502

Cobra Arcade Bar
801 N 2nd Street #100
602.595.5873

Compass Restaurant
Hyatt Regency Phoenix
122 N 2nd Street
602.440.3166

The Counter
50 N Central Avenue
602.466.3411

District American Kitchen & Wine Bar
320 N 3rd Street
602.817.5400

**ASIAN**
Squid Ink Sushi Bar
CityScape
2 E Jefferson Street, #22-108
602.258.0510

**VEGAN HOUSE**
20 W Adams Street
602.258.3426

**ITALIAN**
CIBO Urban Pizzeria
603 N 5th Street
602.441.2697

Pomo Pizzeria Napoletana Phoenix
705 N 1st Street #120
602.795.2555

The Strand
CityScape
2 E Jefferson Street, #22-113
602.253.1600

**LATIN AMERICAN**
La Flor de Calabaza
705 N 1st Street #110
602.730.8533
Continuing Medical Education (CME) Information

Educational Mission Statement

PURPOSE
The American Clinical Neurophysiology Society (ACNS) is a professional association dedicated to fostering excellence in clinical neurophysiology and furthering the understanding of central and peripheral nervous system function in health and disease through education, research, and the provision of a forum for discussion and interaction.

CONTENT
ACNS is committed to providing continuing medical education to its members and others interested in clinical neurophysiology. Educational objectives include 1) Reviewing current knowledge of clinical neurophysiology including: electroencephalography, evoked potentials, electromyography, nerve conduction studies, intraoperative monitoring, polysomnography and other sleep technology, quantitative neurophysiological methods, magnetoencephalography, sleep disorders, epilepsy, neuromuscular disorders, brain stimulation, brain-computer interfacing, and related areas; and 2) Informing course and meeting attendees of recent technological developments and their implications for clinical practice.

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.

EXPECTED RESULT
Attendees will improve competence in clinical neurophysiology procedures and incorporate new technological advancements into their practice.

GAPS AND NEEDS
In compliance with the Updated Accreditation Criteria of the Accreditation Council for Continuing Medical Education (ACCME), the Continuing Medical Education Committee of the ACNS has identified “professional practice gaps.” Definition: A “professional practice gap” is the difference between what a health professional is doing or accomplishing compared to what is achievable on the basis of current professional knowledge.

The following professional practice gaps and educational needs were identified by a combined effort of the Program, Course and CME Committees.

Gap 1. Emerging Areas of Practice
Neurophysiologic intraoperative monitoring (NIOM) and intensive care unit EEG monitoring (ICU EEG) are new and rapidly evolving areas of clinical neurophysiology. Few practicing neurologists have adequate training in these techniques, and physicians with competence in these areas are in great demand. Educational activities should cover both basic methodologies for those practitioners new to ICU EEG and NIOM, and innovative techniques.

Gap 2. General Practice of Clinical Neurophysiology
Clinical neurophysiology procedures are performed by a large proportion of practicing US neurologists, many of whom have little or no formal training in clinical neurophysiology. Many clinical neurophysiology procedures (e.g. evoked potentials, invasive EEG) are performed at low volume at most centers, and a forum for review and hands-on interpretation are essential to maintain competence in these areas.

Several specific topics with significant gaps between current practice and ideal practice have been identified via review of the literature, review of clinical neurophysiology fellowship curricula, and surveys of ACNS members and Annual Meeting attendees. These include:

- Peripheral neurophysiology, Pediatric EMG, critical illness related neurophysiology, and muscle ultrasound
- Basic EEG: Identification of normal variants, identification of artifacts, clinical correlation
- Pediatric EEG, especially neonatal EEG
- Digital EEG processing, e.g. quantitative EEG and trends for use in the intensive care unit, source localization, coregistration with neuroimaging, etc.
- Full band EEG, Ultrafast and ultraslow EEG
- NIOM: Motor evoked potentials, guidelines and standards of care for NIOM (e.g. indications, cost effectiveness)
- Evoked potentials: Current role of short- and long-latency EPs
- Video-EEG monitoring, especially invasive EEG
- Sleep, Use of new scoring system, implications for patient care

CHANGES IN BEHAVIOR/PRACTICE
It is intended that, as a result of attending the meeting and/ or courses, physician attendees will be able to identify changes in competence or performance that are desirable. Definitions: “Competence” is knowing how to do something. “Performance” is what the physician would do in practice, if given the opportunity.

EVALUATION
The updated ACCME accreditation criteria are designed to integrate with the new requirements for maintenance of certification (for more information see www.ABPN.org). Physicians are expected to perform self-assessments of their practice, but the ACNS, as an organization accredited by the ACCME, is expected to measure how its educational activities assist physicians in this activity. Thus, there are new questions in the evaluation form. These questions address your intended changes in competence or performance. In a few months, we will contact all physician meeting attendees to ask you if you actually HAVE experienced changes in competence or performance. Your responses, now and in the future, will assist us and ultimately you in determining educational activities that are most useful to you.

POLICY ON FINANCIAL DISCLOSURES
It is the policy of ACNS to ensure balance, independence, objectivity and scientific rigor in all its individually sponsored or jointly sponsored educational programs. In order to comply with the ACCME’s Updated Standards for Commercial Support, ACNS requires that anyone who is in a position to control the content of an educational activity discloses all relevant financial relationships with any commercial interest pertaining to the content of the presentation. Should it be determined that a conflict of interest exists as a result of a financial relationship of a planner of the CME activity, the planner must recuse himself or herself from the planning for that activity or relevant portion of that activity. All presentations for which the presenter disclosed a potential conflict of interest are peer reviewed by two members of the ACNS CME Committee with no relationships. If bias is found, the presenter is asked to make changes to the presentation and it is re-reviewed for bias before final approval. Refusal to disclose a conflict or the inability to resolve an identified conflict precludes participation in the CME activity. Complete conflict of interest disclosure information is printed in the final program for the activity. A learner may request additional information regarding the nature of a planner or speaker’s disclosure if “No Relevant Relationships” has been indicated. To request additional information, contact the ACNS Executive office at info@acns.org.
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 around the country.

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, evoked potentials, ALS, magnetoencephalography, practice technologies, nerve conduction studies and other clinical neurophysiology techniques; 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 a maximum 18.75 AMA PRA Category I Credit(s)™. Physicians should claim only credit commensurate with the extent of their participation in the activity.
ACNS designates the Annual Courses for the maximum number of AMA PRA Category I Credit(s)™.

Applied Cases in Central Neurophysiology & Video-EEG
1.5 AMA PRA Category I Credit(s)™

EEG/EMG/NIOM Technology
1.5 AMA PRA Category I Credit(s)™

Neurophysiologic Intraoperative Monitoring (NIOM) Part I
6.5 AMA PRA Category I Credit(s)™

Intensive Care Unit EEG Monitoring (ICU EEG)
6.25 AMA PRA Category I Credit(s)™

Introduction Stereo-EEG
1.5 AMA PRA Category I Credit(s)™

Non-Invasive Brain Stimulation Technology
1.5 AMA PRA Category I Credit(s)™

Autonomic Neurophysiology
1.5 AMA PRA Category I Credit(s)™

EMG
4.25 AMA PRA Category I Credit(s)™

Neurophysiologic Intraoperative Monitoring (NIOM) Part II
6.5 AMA PRA Category I Credit(s)™

Electrocorticography (ECoG)/Invasive EEG
6.5 AMA PRA Category I Credit(s)™

4th Annual CNP Program Director’s Symposium
2 AMA PRA Category I Credit(s)™

Applied Cases in Peripheral Neurophysiology
2 AMA PRA Category I Credit(s)™

Video-EEG
3 AMA PRA Category I Credit(s)™

Evoked Potentials
2.75 AMA PRA Category I Credit(s)™

Neonatal & Pediatric EEG
3 AMA PRA Category I Credit(s)™
## Conflict of Interest Disclosures

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<td>Nicholas S. Abend, MD, FACNS</td>
<td>Children's Hospital of Philadelphia</td>
<td>Demos Medical Publishing (g); Marinus (b); NIH (a); Sage (b)</td>
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<td>Imran I. Ali, MD, FACNS</td>
<td>University of Toledo</td>
<td>No Relationships</td>
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<td>Richard Burgess, MD, PhD, FACNS</td>
<td>Cleveland Clinic</td>
<td>No Relationships</td>
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<tr>
<td>Jonathan C. Edwards, MD, FACNS</td>
<td>Medical University of South Carolina</td>
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<tr>
<td>Gloria Galloway, MD, MBA, FACNS</td>
<td>Ohio State University Medical Center</td>
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<td>Cecil Hahn, MD, MPH, FACNS</td>
<td>The Hospital for Sick Children</td>
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<td>Aatif Husain, MD, FACNS</td>
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<td>Suzette LaRoche, MD, FACNS</td>
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<td>Tobias Loddenkemper, MD, FACNS</td>
<td>Children's Hospital Boston</td>
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<td>Jamie R. Lopez, MD, FACNS</td>
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<td>Marc Nuwer, MD, PhD, FACNS</td>
<td>UCLA</td>
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<td>Stephan Schuele, MD, MPH, FACNS</td>
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<td>Saurabh Sinha, MD, PhD, FACNS</td>
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<td>William Tatum, DO, FACNS</td>
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### Course Committee

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<tr>
<td>Selim Benbadis, MD, FACNS</td>
<td>University of South Florida</td>
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<td>Meriem Bensalem-Owen, MD, FACNS</td>
<td>University of Kentucky</td>
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<td>Jeffrey Britton, MD, FACNS</td>
<td>Mayo Clinic</td>
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<tr>
<td>Frank W. Drislane, MD, FACNS</td>
<td>Beth Israel Deaconess Medical Center</td>
<td>LWW (g); UpToDate (g)</td>
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<td>Charles Epstein, MD, FACNS</td>
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<td>Susan T. Herman, MD, FACNS</td>
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<td>Lawrence J. Hirsch, MD, FACNS</td>
<td>Yale University</td>
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<td>Ruple Laughlin, MD</td>
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<td>Jong Woo Lee, MD, PhD, FACNS</td>
<td>Brigham &amp; Women's Hospital</td>
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<td>Jeffrey Liou, DO</td>
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<td>Daniel Menkes, MD, FACNS</td>
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<td>Claus Reinsberger, MD, PhD, FACNS</td>
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<td>Alexander Rotenberg, MD, PhD</td>
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<td>Elayna Rubens, MD, FACNS</td>
<td>Memorial Sloan Kettering Cancer Center</td>
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<td>Devon Rubin, MD</td>
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<td>Seward Rutkove, MD</td>
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<td>Mark Scher, MD</td>
<td>Rainbow Babies and Children's Hospital</td>
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**Key:**
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## Conflict of Interest Disclosures

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<td>Asim Shahid, MD</td>
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<td>M. Brandon Westover, MD, PhD</td>
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<td>Salah Almubarak, MD, FRCPC, FACNS</td>
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<td>Anto Bagic, MD, PhD, FACNS</td>
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<td>Hospital for Special Surgery</td>
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<tr>
<td>Akio Ikeda, MD, PhD</td>
<td>Kyoto University School of Medicine</td>
<td>Endowed Chair (g); Honoratium (g)</td>
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<td>University of Rochester School of Medicine</td>
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<td>Mhammad MU Kabiraj Sr., MBBS, M.Phil, Ph.D, FACNS</td>
<td>Prince Sultan Military Medical City (PSMMC)</td>
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<td>Ioannis Karakis, MD, MSc</td>
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<td>Daniela Minecan, MD</td>
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<td>Heidi Munger Clery, MD, MPH</td>
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<td>Christos Papadelis, PhD</td>
<td>Boston Children's Hospital, Harvard Medical School</td>
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<td>Eva K. Ritzl, MD, FACNS</td>
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<td>Raj D. Sheth, MD, FACNS</td>
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<td>Amit Verma, MBBS</td>
<td>Houston Methodist Hospital</td>
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<td>Vinita J. Acharya, MD</td>
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<td>Dipakkumar Pandya, MD</td>
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<td>Christa Swisher, MD</td>
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<td>Pegah Afra, MD University of Utah</td>
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<td>Amy Crepeau, MD Mayo Clinic</td>
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<td>Andrea Hakimi, DO, FACNS University of Oklahoma</td>
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<td>Vahe Akopian, MD University of Southern California</td>
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<td>Several companies that market health care goods or services; none of them are related to the subject of my presentation (c)</td>
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<td>Christopher Skidmore, MD Thomas Jefferson University</td>
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## Conflict of Interest Disclosures

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<td>Megan M. Hille, CAE, CMP</td>
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<td>Denice Mader</td>
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Support Acknowledgement

ACNS gratefully acknowledges the following companies for their support of the 2017 Annual Meeting & Courses:

Gold Level

SAGE THERAPEUTICS
*Unrestricted educational grant in support of Course #812 – ICU EEG Monitoring*

Bronze Level

RICOH COMPANY, LTD
*Grant support of Friday, Feb. 10 beverage break and Saturday, Feb. 11 breakfast*

Bronze Level Exhibitors

Ambu  NeuroTech  Lifelines Neurodiagnostic Systems  Medical Practice Solutions
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Cadwell  Compumedics Neuroscan  Electrical Geodesics, Inc. (EGI)  Moberg Research
Cadwell  Compumedics Neuroscan  Electrical Geodesics, Inc. (EGI)  Moberg Research

Networking & Social Events

WELCOME RECEPTION
Friday, February 10, 2017
7:00 – 8:30PM
Location: Encanto Ballroom

Dr. Jonathan C. Edwards, MD, FACNS formally invites all Annual Meeting delegates to attend the ACNS Welcome Reception on Friday, February 10, from 7:00 – 8:30PM in the ACNS Exhibit Hall, Encanto Ballroom.

NEW MEMBER MEET & GREET
ACNS members who have joined the Society in the past year are invited and encouraged to attend the Welcome Reception on Friday, February 10 from 7:00 – 8:30pm in the Exhibit Hall. A special meet & greet area will be designated for new members to meet one another, along with members of the ACNS Council and Membership Committee. ACNS Leaders will be in attendance to welcome you to the Society and to discuss all the benefits ACNS membership has to offer.

PROFESSIONAL DEVELOPMENT MENTORING PROGRAM
If you signed up to be a mentor or mentee, there will be a designated meeting area in the Exhibit Hall on Friday and Saturday during breaks and lunches. Please look for the tables marked with balloons as a place to meet up!
Award Recipients & Lectures
Friday, February 10, 2017

2017 PRESIDENT’S ADDRESS
“The Health of Our Profession”
Jonathan C. Edwards, MD, MBA, FACNS
As an epileptologist, Dr. Edwards’ clinical interests include epilepsy treatment, clinical neurophysiology, neuro-stimulation, epilepsy surgery, neurological education and functional brain mapping. His research interests include new treatments for epilepsy, epilepsy imaging and improving access to care for patients with epilepsy. Dr. Edwards is a member of the South Carolina Neurological Association, the American Epilepsy Society, the American Academy of Neurology and the American Clinical Neurophysiology Society. He has served on the scientific committee of several organizations, including the American Clinical Neurophysiology Society, and has been a Board Member and Examiner for the American Board of Clinical Neurophysiology and for ABRET. Dr. Edwards has won numerous awards for teaching, research and patient advocacy.

2017 PIERRE GLOOR AWARD PRESENTATION & LECTURE
“From Fast to Slow: Casual Analysis of Intracranial EEG”
Charles M. Epstein, MD, FACNS
The Gloor Award is presented annually for outstanding current contributions to clinical neurophysiology research. Dr. Epstein will be recognized and will deliver the 2017 Gloor Address on Friday, February 10, 2017 at the ACNS Annual Meeting. Dr. Epstein is Professor of Neurology at Emory University School of Medicine in Atlanta, Georgia and a former president of ACNS.

Saturday, February 11, 2017

2017 HERBERT H. JASPER AWARD PRESENTATION & LECTURE
“The Epileptogenic Zone”
Hans Lüders, MD, PhD, FACNS
The Jasper Award is presented annually to an individual who has made a lifetime of outstanding contributions to the field of clinical neurophysiology. Dr. Lüders will be recognized during a general session on Saturday, February 11, 2017. Dr. Lüders is a Professor in the Department of Medicine at Cleveland Clinic Lerner College of Medicine of Case Western Reserve in Cleveland.

2017 ROBERT S. SCHWAB AWARD
“Modern Clinical Neurophysiology in ALS-Tracing Lower & Upper Motor Neuron Involvement”
Reinhard Dengler, MD
The Schwab Award is presented annually to an individual who has made significant contributions in the area of clinical neurophysiology. Dr. Dengler will be recognized and will deliver the 2017 Schwab Lecture on Saturday, February 11, 2017. Dr. Dengler is the Chairman and a Professor of Neurology at Hannover Medical School.
**Annual Courses Overview**

**Wednesday, February 8, 2017**

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<tr>
<td>7:00-8:30AM</td>
<td>801: EEG/EMG/NIOM Technology</td>
<td>Paradise Valley</td>
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<tr>
<td>7:00-8:30AM</td>
<td>802: Applied Cases in Central Neurophysiology &amp; Video EEG</td>
<td>Camelback</td>
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<tr>
<td>9:00AM-5:00PM</td>
<td>811: Neuropsychologic Intraoperative Monitoring (NIOM) Part I</td>
<td>Paradise Valley</td>
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<td>9:00AM-5:00PM</td>
<td>812: Intensive Care Unit EEG Monitoring (ICU EEG)</td>
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**Thursday, February 9, 2017**

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<td>901: Stereo-EEG</td>
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<tr>
<td>7:00-8:30AM</td>
<td>902: Non-invasive Brain Stimulation Technology</td>
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<tr>
<td>9:00AM-2:30PM</td>
<td>903: Autonomic Neurophysiology</td>
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<tr>
<td>9:00AM-5:00PM</td>
<td>911: EMG</td>
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<tr>
<td>9:00AM-5:00PM</td>
<td>921: Neuropsychologic Intraoperative Monitoring (NIOM) Part II</td>
<td>Paradise Valley</td>
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<tr>
<td>9:00AM-5:00PM</td>
<td>922: Electrocorticography (ECoG) &amp; Intracranial EEG</td>
<td>Camelback</td>
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<tr>
<td>11:30AM-2:00PM</td>
<td>931: 4th Annual CNP Program Director’s Symposium</td>
<td>Maryvale A</td>
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<td>3:00-5:00PM</td>
<td>941: Applied Cases in Peripheral Neurophysiology</td>
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**Friday, February 10, 2017**

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<tr>
<th>Time</th>
<th>Course</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:00-10:00AM</td>
<td>1301: Video-EEG</td>
<td>Deer Valley</td>
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<tr>
<td>7:00-10:00AM</td>
<td>1302: Evoked Potentials</td>
<td>Paradise Valley</td>
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<tr>
<td>7:00-10:00AM</td>
<td>1303: Neonatal &amp; Pediatric EEG</td>
<td>Camelback</td>
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**Annual Meeting Overview**

**Friday, February 10, 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
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<tbody>
<tr>
<td>10:00-10:30AM</td>
<td>Coffee Break – Visit Exhibits &amp; Poster Viewing</td>
<td>Encanto</td>
</tr>
<tr>
<td>10:30AM-12:15PM</td>
<td>Opening General Session: President’s Address &amp; Gloor Award Lecture</td>
<td>Valley of the Sun DE</td>
</tr>
<tr>
<td>12:15-1:30PM</td>
<td>Lunch, Visit Exhibits, Poster Tours, Product Theaters</td>
<td>Encanto, South Mountain Estrella, Maryvale A &amp; Maryvale B</td>
</tr>
<tr>
<td>1:30-3:30PM</td>
<td>Concurrent Sessions</td>
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<tr>
<td>1011: IFCN Symposium: Movement Control – The Clinical Neurophysiologist’s Perspective</td>
<td>Paradise Valley</td>
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<tr>
<td>1012: Epileptic Encephalopathy with CSWS: An Overview &amp; Practical Approach</td>
<td>Camelback</td>
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<tr>
<td>1013: Tips &amp; Tricks for MEP in Spinal Surgery</td>
<td>Deer Valley</td>
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<tr>
<td>3:30-4:00PM</td>
<td>Coffee Break – Visit Exhibits &amp; Poster Viewing</td>
<td>Encanto</td>
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<tr>
<td>4:00-5:30PM</td>
<td>Concurrent Sessions</td>
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<tr>
<td>1021: Clinical Neurophysiology as a Window to Consciousness</td>
<td>Paradise Valley</td>
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<tr>
<td>1022: Mapping Epileptogenic &amp; Functional Cortex in Tumor-Related Epilepsy</td>
<td>Camelback</td>
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<tr>
<td>1023: Clinical Neurophysiology Around the World</td>
<td>Maryvale A</td>
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<tr>
<td>1024: SIG: Clinical Neurophysiology Resident &amp; Fellows Special Interest Group</td>
<td>Maryvale B</td>
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</tr>
<tr>
<td>1025: Joint ACNS/Mexican Society of Clinical Neurophysiology Symposium: Beyond Rhythms &amp; Spikes: How the EEG Can Reveal the Dysfunctional Dynamics of Complex Networks in Psychiatric &amp; Neurodevelopmental Disorders</td>
<td>Deer Valley</td>
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<tr>
<td>5:30-5:45PM</td>
<td>Walking Break</td>
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<tr>
<td>5:45-7:00PM</td>
<td>JCN Award Presentation &amp; Neurophys Bowl</td>
<td>Valley of the Sun DE</td>
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<tr>
<td>7:00-8:30PM</td>
<td>Welcome Reception</td>
<td>Encanto</td>
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**Saturday, February 11, 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>7:00-8:00AM</td>
<td>Continental Breakfast – Visit Exhibits &amp; Poster Viewing</td>
<td>Encanto</td>
</tr>
<tr>
<td>8:00-9:30AM</td>
<td>Concurrent Sessions</td>
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<tr>
<td>1111: Interpreting Challenging NCS &amp; Needle EMG Findings - An Interactive Case-Based Approach</td>
<td>Maryvale A</td>
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</tr>
<tr>
<td>1112: Aggressiveness of Treatment of Refractory Status Epilepticus: A Clinical Neurophysiology Approach</td>
<td>Paradise Valley</td>
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</tr>
<tr>
<td>1113: Competing Techniques for Refining the Location of the Epileptogenic Zone: Magnetoencephalography &amp; High Density EEG</td>
<td>Camelback</td>
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</tbody>
</table>
## Annual Meeting Overview

### Saturday, February 11, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>9:30-10:00AM</td>
<td><strong>Coffee Break – Visit Exhibits &amp; Poster Viewing</strong></td>
<td>Encanto</td>
</tr>
<tr>
<td>10:00-11:00AM</td>
<td><strong>General Session: Travel Award Presentation &amp; Jasper Award Lecture</strong></td>
<td>Valley of the Sun DE</td>
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<tr>
<td>11:00-11:15AM</td>
<td><strong>Walking Break</strong></td>
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<tr>
<td>11:15AM-12:45PM</td>
<td><strong>Concurrent Sessions</strong></td>
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<td>1131: IFCN Symposium: The Clinical Neurophysiology of Neuromuscular Disease</td>
<td>Paradise Valley</td>
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<td>1132: Consensus for Recording &amp; Analysis of Wide-Band EEG in Clinical Epilepsy</td>
<td>Camelback</td>
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<td>1133: Uso de EEG en Cuidado Intensivo (Use of EEG in the ICU)</td>
<td>Deer Valley</td>
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<tr>
<td>12:45-2:00PM</td>
<td><strong>Lunch</strong></td>
<td>Encanto</td>
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<tr>
<td></td>
<td><strong>Visit Exhibits</strong></td>
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<td></td>
<td><strong>Poster Tours</strong></td>
<td>South Mountain Estrella</td>
</tr>
<tr>
<td>1:30-2:00PM</td>
<td><strong>Annual Business Meeting</strong></td>
<td>Valley of the Sun DE</td>
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<tr>
<td>2:00-3:30PM</td>
<td><strong>Concurrent Sessions</strong></td>
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<td></td>
<td>1151: Nerve Conduction Testing in Entrapment Neuropathies</td>
<td>Maryvale A</td>
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<td>1152: Advances in Prognostication &amp; Management of Coma Following Cardiac Arrest</td>
<td>Paradise Valley</td>
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<td></td>
<td>1153: Neurostimulation &amp; Networks: Management of Refractory Epilepsy</td>
<td>Camelback</td>
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<td>1154: Cortico-Cortical Evoked Potentials &amp; High Frequency Oscillations – Brain Mapping Made Easy</td>
<td>Deer Valley</td>
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<td>1155: Joint ACNS/IFCN Latin America Chapter Symposium: Transcranial Motor Evoked Potentials Warning Criteria</td>
<td>Maryvale B</td>
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<tr>
<td>3:30-3:45PM</td>
<td><strong>Walking Break</strong></td>
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<tr>
<td>3:45-5:15PM</td>
<td><strong>Concurrent Sessions</strong></td>
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<td>1161: Understanding the Utility of Stereo Electroencephalography (SEEG) in Intractable Focal Epilepsy through Illustrative Cases</td>
<td>Paradise Valley</td>
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<td>1163: The Frontal Lobe Club</td>
<td>Maryvale A</td>
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<td>1164: Proponents vs. Opponents: You Really Mean I Need to Order a MEG in 2017?</td>
<td>Maryvale B</td>
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<tr>
<td></td>
<td>1165: SIG: Neurophysiological Intraoperative Monitoring (NIOM)</td>
<td>Deer Valley</td>
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<tr>
<td>5:15-5:30PM</td>
<td><strong>Walking Break</strong></td>
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<tr>
<td>5:30-7:00PM</td>
<td><strong>General Session: Research Highlights &amp; Schwab Award Lecture</strong></td>
<td>Valley of the Sun DE</td>
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<tr>
<td>7:00-8:00PM</td>
<td><strong>Keynote Lecture: Neurology of Musical Masters</strong></td>
<td>Valley of the Sun DE</td>
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### Sunday, February 12, 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:00-8:00AM</td>
<td><strong>Continental Breakfast</strong></td>
<td>Valley of the Sun Foyer</td>
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<tr>
<td>8:00-9:30AM</td>
<td><strong>Concurrent Sessions</strong></td>
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<tr>
<td></td>
<td>1201: Joint ACNS/DGKN (German Society) Symposium: The Role of Neurophysiology for Acute Sports Injuries</td>
<td>Deer Valley</td>
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<td></td>
<td>1202: Neurophysiologic Intraoperative Monitoring of Vascular Disorders</td>
<td>Paradise Valley</td>
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<td>1203: Advances to Improve Accuracy in EEG Interpretation</td>
<td>Maryvale A</td>
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<tr>
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<td>1204: SIG: Invasive EEG – Interictal Epileptiform Activity &amp; Beyond</td>
<td>Camelback</td>
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<tr>
<td>9:30-10:00AM</td>
<td><strong>Coffee Break</strong></td>
<td>Valley of the Sun Foyer</td>
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<tr>
<td>10:00-11:30AM</td>
<td><strong>Concurrent Sessions</strong></td>
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<td>1211: Joint ACNS/Brazilian Society Symposium: The Neurology &amp; Neurophysiology of Zika Virus</td>
<td>Maryvale A</td>
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<td>1212: Practical Applications of Unconventional Neurophysiologic Intraoperative Monitoring (NIOM) Techniques</td>
<td>Paradise Valley</td>
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<td>1213: Defining Research Priorities in Refractory Status Epilepticus Management</td>
<td>Camelback</td>
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<td>1214: Infantile Spasms: A Look at One Old Epilepsy in the Modern Era</td>
<td>Deer Valley</td>
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</table>
Program Agenda | Annual Courses

Wednesday, February 8, 2017

7:00-8:30AM
801: EEG/EMG/NIOM Technology
Location: Paradise Valley
Co-Directors: Susan T. Herman, MD, FACNS & Seward Rutkove, MD
Objectives:
At the conclusion of this course, participants should be able to:
1. Describe the fundamental operation of neurophysiologic recording equipment, including differential amplifiers, common mode noise rejection, ground and analog and digital filters;
2. Explain the concepts of analog-to-digital conversion, aliasing and general frequency analysis;
3. Explain the concepts involved in electrical stimulation of nerve and muscle;
4. Evaluate and select neurophysiologic equipment based on knowledge of appropriate technical specifications for clinical or research use;
5. Appropriately select and utilize developing technologies for peripheral nerve and muscle assessment.

Agenda:
7:00am EMG Technology
Seward Rutkove, MD
7:45am EEG Technology
Susan T. Herman, MD, FACNS

9:00AM-5:00PM
811: Neurophysiologic Intraoperative Monitoring (NIOM) Part I
Location: Paradise Valley
Co-Directors: Aatif M. Husain, MD, FACNS & Mirela V. Simon, MD, MSc, FACNS
Objectives:
At the conclusion of this course, participants should be able to:
1. Design a comprehensive monitoring plan for individual patients, including multimodality intraoperative monitoring techniques (e.g. recordings of sensory and motor evoked potentials, EEG, EMG, and spinal reflex activity) to monitor segments of the nervous system at risk during surgery;
2. Recognize changes in intraoperative neurophysiologic tests which indicate damage to neural structures, and distinguish these from common technical artifacts;
3. Communicate normal and abnormal results to the surgical team, and incorporate results into clinical recommendations that may alter the surgical technique to avoid, limit or reverse injury to neural structures;
4. Apply knowledge about effects of anesthesia on NIOM and designing optimal anesthetic strategies for effective monitoring.

Agenda:
9:00am Welcome & Introductions
9:05am SEP Monitoring
Viet Nguyen, MD, FACNS
9:45am MEP Monitoring
Leslie H. Lee, MD, FACNS
10:25am Morning Break
10:40am BAEP Monitoring
Alan D. Legatt, MD, PhD, FACNS
11:20am EEG Monitoring
Michael McGarvey, MD, FACNS
12:00pm Discussion
12:15pm Lunch — on your own, see page 9 for nearby restaurants
1:15pm EMG & Peripheral Nerve Monitoring
Gloria M. Galloway, MD, MBA, FACNS
1:55pm Cranial Nerve Monitoring
Jaime R. Lopez, MD, FACNS
2:35pm Anesthesia
Patrick Bolton, MD
3:15pm Afternoon Break
3:30pm Troubleshooting
Jay L. Shils, PhD, DABNM, FACNS
4:10pm Billing Issues
Marc R. Nuwer, MD, PhD, FACNS
4:50pm Discussion
Wednesday, February 8, 2017

9:00AM-5:00PM
812: Intensive Care Unit EEG Monitoring (ICU EEG)
Location: Camelback
Co-Directors: Jong Woo Lee, MD, PhD, FACNS & Courtney J. Wusthoff, MD, FACNS

Objectives:
At the conclusion of this course, participants should be able to:
1. Discuss current guidelines and evaluate various practice models for ICU EEG monitoring to improve patient care for both adults and children;
2. Apply the standard ACNS terminology to ICU EEG recordings, to improve standardization of ICU EEG reports and communication between providers;
3. Recognize controversial EEG patterns in ICU patients with altered mental status, and formulate a rational plan for treatment based on these EEG patterns;
4. Develop a comprehensive ICU EEG monitoring program, including equipment selection, training of interdisciplinary staff, quality improvement and risk management.

Agenda:
9:00am  Overview of ICU EEG Monitoring in Neonates, Children & Adults
Nicholas Abend, MD, FACNS
9:40am  Guidelines & Logistics of ICU EEG Monitoring
Susan T. Herman, MD, FACNS
10:10am cEEG Interpretation: Background, Reactivity, Artifacts, & ACNS Terminology
Lawrence J. Hirsch, MD, FACNS

Thursday, February 9, 2017

7:00-8:30AM
901: Stereo-EEG
Location: Paradise Valley
Co-Directors: Stephan U. Schuele, MD, MPH, FACNS & Nitin Tandon, MD

Objectives:
At the conclusion of this course, participants should be able to:
1. Explain the principles underlying Stereo EEG including patient selection and targeting electrode placement;
2. Understand the fundamentals of pre- and postoperative image processing and co-registration;
3. Understand the principles of stereotactic surgical implantation, pitfalls and complications.

Agenda:
7:00am  Patient & Electrode Selection
Stephan U. Schuele, MD, MPH, FACNS
7:30am  Image Processing & Surgical Planning
Giridhar Kalamangalam, MD, DPhil, FACNS
8:00am  Nuts & Bolts of SEEG Implantation
Nitin Tandon, MD

This course is supported, in part, by an unrestricted educational grant from Sage Therapeutics
Program Agenda | Annual Courses
Thursday, February 9, 2017

7:00-8:30AM  
903: Autonomic Neurophysiology  
Location: Deer Valley  
Co-Directors: Jeffrey Liou, DO & Claus Reinsberger, MD, PhD, FACNS  
Objectives:  
At the conclusion of this course, participants should be able to:  
1. Recognize the clinical features and patterns on autonomic testing in systemic and primary neurological disorders affecting central and peripheral autonomic pathways with their underlying anatomy and physiology;  
2. Understand an approach to the diagnostic evaluation and management of disorders of the autonomic nervous system.  
Agenda:  
7:00am  Introduction  
7:05am  Anatomy & Physiology of the Autonomic Nervous System  
Jeffrey Liou, DO  
7:40am  Neurological Disorders with Central Autonomic Failure  
Alexandra Hovaguimian, MD  
8:05am  Peripheral Autonomic Failure  
Brent Goodman, MD

9:00AM-2:30PM  
911: EMG  
Location: Deer Valley  
Co-Directors: Daniel Menkes, MD, FACNS & Devon Rubin, MD, FACNS  
Objectives:  
At the conclusion of this course, participants should be able to:  
1. Identify and correct technical and physiologic factors that can interfere with appropriate performance and interpretation of NCS;  
2. Understand electrophysiologic approaches and findings in patients with peripheral neuropathies;  
3. Apply and interpret NCS and needle EMG techniques in the evaluation of patients with neuromuscular junction diseases;  
4. Recognize electrodiagnostic features of hyperexcitable nerve syndromes;  
5. Improve recognition and interpretation of various needle EMG waveforms.  
Agenda:  
9:00am  Pitfalls of NCS  
Devon I. Rubin, MD, FACNS  
9:45am  Electrodiagnostic Evaluation of Peripheral Neuropathy  
Daniel Menkes, MD, FACNS  
10:30am  Morning Break  
10:45am  Electrodiagnostic Approach to Neuromuscular Junction Disorders  
Brent Goodman, MD  
11:30am  Electrodiagnostic Features of Hyperexcitable Nerve Syndromes  
Ruple Laughlin, MD  
12:15pm  Lunch — on your own, see page 9 for nearby restaurants  
1:15pm  EMG Waveform Identification  
Devon I. Rubin, MD, FACNS

9:00AM -5:00PM  
921: Neurophysiologic Intraoperative Monitoring (NIOM) Part II  
Location: Paradise Valley  
Co-Directors: Aatif M. Husain, MD, FACNS & Mirela V. Simon, MD, MSc, FACNS  
Objectives:  
At the conclusion of this course, participants should be able to:  
1. Apply knowledge of advanced NIOM techniques, such as D wave recordings, brain mapping and other techniques to their practice;  
2. Understand the value and cost-effectiveness of NIOM in various types of surgical procedures;  
3. Be aware of the medicolegal environment surrounding the practice of NIOM.  
Agenda:  
9:00am  Welcome & Introductions  
9:05am  Motor Mapping & Monitoring  
TBD  
9:45am  Medicolegal & Business Issues  
George R. Lee, MD  
10:25am  Morning Break  
10:40am  Value of NIOM  
John Ney, MD, MPH  
11:20am  Pedicle Screw Evaluation  
Bernard Allen Cohen, PhD, FACNS FASNM  
12:00pm  Q & A Discussion  
12:15pm  Lunch — on your own, see page 9 for nearby restaurants  
1:15pm  Language Mapping  
David Gloss, MD, FACNS  
1:55pm  Electrocorticography  
Mirela V. Simon, MD, FACNS  
2:35pm  Pelvic Floor Monitoring  
Stanley Skinner, MD, FACNS  
3:15pm  Afternoon Break  
3:30pm  D Wave Monitoring with Case Discussions  
Eva K. Ritzl, MD, FACNS  
4:10pm  Sensory & Motor Spinal Cord Mapping  
Andres Gonzalez, MD, MMM, FACNS  
4:50pm  Discussion
Program Agenda | Annual Courses
Thursday, February 9, 2017

9:00AM-5:00PM
922: Electrocorticography (ECoG) & Intracranial EEG
Location: Camelback
Co-Directors: Lawrence J. Hirsch, MD, FACNS & Stephan U. Schuele, MD, MPH, FACNS

Objectives:
At the conclusion of this course, participants should be able to:
1. Identify patients from noninvasive evaluations that are good candidates for intracranial EEG evaluation;
2. Understand which type of intracranial EEG recordings, if any, are most appropriate for a given patient, including consideration of risks of complications;
3. Describe which invasive EEG patterns correlate with specific pathologies and which have prognostic importance;
4. Understand techniques for mapping eloquent cortex via intracranial EEG stimulation and recordings;
5. Understand the current state of knowledge regarding high frequency oscillations and DC shifts;
6. Understand the ongoing research into basic physiology of focal onset epilepsy based on invasive EEG techniques.

Agenda:
9:00am  Intro/Overview
9:15am  Temporal Lobe Epilepsy: When to do Invasive Monitoring & How to Choose Electrode Type Giridhar Kalamangalam, MD, DPhil, FACNS
9:45am  Extratemporal Epilepsy: When to do Invasive Monitoring & How to Choose Electrode Type Stephan U. Schuele, MD, MPH, FACNS
10:15am  Surgical Techniques Including Risks of Invasive Implantations Daniel J. Curry, MD
10:45am  Morning Break
11:00am  Patterns of Seizure Onsets & Spread, Underlying Pathological Substrate & Outcomes Lawrence J. Hirsch, MD, FACNS
11:30am  Intracranial EEG in Children Juan Bulacio, MD
12:00pm  Lunch — on your own, see page 9 for nearby restaurants
1:00pm  Concept of “Epileptogenic Zones/Networks” & Identifying them with Invasive EEG Patrick Chaurwil, MD
1:45pm  Case Discussion I: Nonlesional Neocortical Epilepsy Jay Gavvala, MD
2:05pm  Case Discussion II: FCD: ECoG vs. Invasive Implantation Lawrence J. Hirsch, MD, FACNS
2:45pm  Discussion
3:00pm  Afternoon Break
3:15pm  Functional Mapping with Intracranial EEG & Cortical Stimulation Anthony Ritaccio, MD
4:00pm  Wideband Intracranial EEG & Localization of Seizure Foci Jean Gotman, PhD, FACNS
4:45pm  Discussion

11:30AM-2:00PM
931: 4th Annual CNP Program Director’s Symposium
Location: Maryvale A
Director: Jeffrey Britton, MD, FACNS

In this fourth annual ACNS CNP Program Director’s Symposium, we will review the implications and benefits associated with entering one of the trainee match systems. Epilepsy will likely enter the match, and other neurology subspecialty training programs are likely to follow suit. It has been proposed that this be considered for Clinical Neurophysiology training programs as well. In addition, novel techniques to enhance education will be demonstrated that the attendee should be able to apply at their program following demonstration. Finally, an update on the latest and potential future directions of the ACGME referable to CNP program requirements and accreditation processes will be presented.

Objectives:
At the conclusion of this course, participants should be able to:
1. Understand nuances, challenges and benefits of the match process for training programs;
2. Identify ready-to-use tools that can be utilized to enhance and expand education offerings for trainees;
3. Explain and understand recent changes to CNP fellowship program requirements.

Agenda:
11:30am  Lunch (provided)
12:00pm  Fellowship Match - Pros & Cons Jeffrey Britton, MD, FACNS
12:30pm  Education Innovations you can Initiate Tomorrow Jeffrey Britton, MD, FACNS Lily Wong-Kisiel, MD Jay S. Pathmanathan, MD, PhD
1:30pm  Words to the Wise from ACGME Imran I. Ali, MD, FACNS

3:00-5:00PM
941: Applied Cases in Peripheral Neurophysiology
Location: Deer Valley
Co-Directors: Ruple Laughlin, MD & Jaime R. Lopez, MD, FACNS

Objectives:
At the conclusion of this course, the participant should be able to:
1. Interpret patterns of clinical neurophysiological findings in peripheral nervous system diseases using a case-based approach;
2. Appropriately localize abnormalities to those affecting nerve, neuromuscular junction and muscle according to the neurophysiological findings.

Agenda:
3:00pm  Introduction
3:05pm  Applied Cases in Neuropathy Ruple Laughlin, MD
3:55pm  Applied Cases in Neuromuscular Junction Disorders Julie Khoury, MD
4:25pm  Applied Cases in Myopathies & Myotonic Disorders Amy Visser, MD
4:50pm  Wrap Up & Panel Questions
Program Agenda | Annual Courses
Friday, February 10, 2017

7:00-10:00AM
1301: Video-EEG
Location: Deer Valley
Co-Directors: Phillip Pearl, MD, FACNS & Michael Sperling, MD, FACNS
Objectives:
At the conclusion of this course, participants should be able to:
1. Discuss the challenges in composing a well-functioning EMU;
2. Demonstrate the semiology of ictal behaviors using video EEG;
3. Demonstrate ictal EEG patterns based on scalp recordings;
4. Demonstrate ictal EEG patterns based on invasive recordings;
5. Identify challenging case studies utilizing the resources of a video-EEG monitoring unit.
Agenda:
7:00am How to Build & Structure a Video-EEG Monitoring Unit
William O. Tatum, IV, DO, FACNS
7:30am Video Analysis of Ictal Behaviors
Nancy Foldvary-Schaefer, DO
8:00am Scalp EEG in Epilepsy
Phillip Pearl, MD, FACNS
8:30am Intracranial EEG
Michael R. Sperling, MD, FACNS
9:00am Case Studies
Christopher Skidmore, MD

7:00-10:00AM
1302: Evoked Potentials
Location: Paradise Valley
Co-Directors: Viet Nguyen, MD, FACNS & Elayna Rubens, MD, FACNS
Objectives:
At the conclusion of this course, participants should be able to:
1. Identify the components of visual, somatosensory, and brainstem auditory evoked potentials;
2. Classify an evoked potential study as normal versus abnormal;
3. Understand the role of signal processing & its applications in the neonatal & pediatric age groups.
Agenda:
7:00am Introduction & Visual Evoked Potentials (VEPs)
Elayna Rubens, MD, FACNS
7:30am Somatosensory Evoked Potentials (SEPs)
Steven Karceski, MD
8:00am Brainstem Auditory Evoked Potentials (BAEPs)
Alan D. Legatt, MD, PhD, FACNS
8:30am Discussion
8:35am Break
8:45am EP Examples & Case Discussions
Viet Nguyen, MD, FACNS (Moderator)
Aatif M. Husain, MD, FACNS
Steven Karceski, MD
Alan D. Legatt, MD, PhD, FACNS
Elayna Rubens, MD, FACNS
Reza Zarnegar, DO, FACNS

7:00-10:00AM
1303: Neonatal & Pediatric EEG
Location: Camelback
Co-Directors: Mark Scher, MD & Asim Shahid, MD
Objectives:
At the conclusion of this course, participants should be able to:
1. Recognize normal EEG features in the neonatal & pediatric EEGs;
2. Identify EEG variants in the neonatal & pediatric EEG;
3. Understand the role of signal processing & its applications in the neonatal & pediatric age groups.
Agenda:
7:00am Practice & Pitfalls of Neonatal EEG
Mark Scher, MD
8:00am Challenges in Pediatric EEG Interpretation
Jun Park, MD
9:00am Use of Signal Processing in Pediatric & Neonatal EEG
Kenneth Loparo, PhD

10:00-10:30AM
Coffee Break
Location: Encanto
Supported, in part, by a grant from Ricoh Company, LTD
Visit Exhibits
Location: Encanto
Poster Viewing
Location: Estrella & South Mountain
Program Agenda | Annual Courses

Friday, February 10, 2017

10:30AM-12:15PM
Opening General Session: President’s Address & Gloor Award Lecture
Location: Valley of the Sun DE
10:30am Welcome & Introduction of President Meriem Bensalem-Owen, MD, FACNS
10:40am President’s Address: “The Health of Our Profession” Jonathan C. Edwards, MD, MBA, FACNS
11:30am Introduction & Gloor Award Presentation Aatif M. Husain, MD, FACNS
11:35am Gloor Award Lecture: From Fast to Slow: Casual Analysis of Intracranial EEG Charles M. Epstein, MD, FACNS

12:15-1:30PM
Lunch
Visit Exhibits
Location: Encanto
Poster Tours
Location: Estrella & South Mountain

12:30-1:30PM
Product Theaters
Location: Maryvale A & B
See page 80 for complete product theater information, including topics and session descriptions.

1:30-3:30PM
Concurrent Sessions
1011: IFCN Symposium: Movement Control – The Clinical Neurophysiologist’s Perspective
Location: Paradise Valley
Session Director: Mark Hallett, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Understand how to use TMS for testing excitability of human motor cortex;
2. Assess cerebellar function in humans, including learning new motor tasks;
3. Understand a model of neuroplasticity linked to artificial limbs use;
4. Understand the concepts of willing and agency and how they are relevant to neurologic disorders.
Agenda:
Welcome
Frank W. Drislane, MD, FACNS
1:30pm Motor Cortex Function Tested by Transcranial Magnetic Stimulation
Ulf Ziemann, MD
2:00pm Cerebellar Stimulation & Prism Adaptation
Yoshikazu Ugawa, MD

2:30pm Brain Reactions to the Use of Robotic Hand in Amputees
Paolo Maria Rossini, MD, PhD
3:00pm The Physiology of Will
Mark Hallett, MD, FACNS

1012: Epileptic Encephalopathy with CSWS: An Overview & Practical Approach
Location: Camelback
Session Director: Kevin Chapman, MD
Objectives:
At the conclusion of this session, participants should be able to:
1. Identify patients with epileptic encephalopathy with continuous spike-and-wave during sleep;
2. Effectively calculate a spike-wave index or other measure of spike-frequency in overnight EEG recordings;
3. Understand the complex effects that frequent spikes have on cognition and behavior;
4. Evaluate how various therapies can be utilized in patients with CSWS.
Agenda:
1:30pm What’s in a Name – ESES/CSWS Definition & Evaluation
Ivan Sanchez Fernandez, MD
2:05pm What is the Influence of Spikes on Cognitive Impairment?
Jennifer Vannest, PhD
2:40pm The Treatment of ESES/CSWS – Options & Practical Approaches
Tobias Loddenkemper, MD, FACNS
3:15pm Discussion

1:30-3:00PM
1013: Tips & Tricks for MEP in Spinal Surgery
Location: Deer Valley
Session Director: David Gloss, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Convey the current evidence for performance of MEP in spinal disorders;
2. Understand common difficulties encountered;
3. Be prepared with countermeasures for these common difficulties.
Agenda:
1:30pm Evidence for MEPs in Spinal Surgery
David Gloss, MD, FACNS
2:00pm Tips & Tricks for MEPs in Spinal Surgery
Eva K. Ritzl, MD, FACNS
Mirela V. Simon, MD, MSc, FACNS

3:30-4:00PM
Coffee Break
Visit Exhibits
Location: Encanto
Poster Viewing
Location: Estrella & South Mountain
Program Agenda | Annual Meeting
Friday, February 10, 2017

4:00-5:30PM
Concurrent Sessions

1021: Clinical Neurophysiology as a Window to Consciousness
Location: Paradise Valley
Session Director: Meriem Bensalem-Owen, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Discuss the recent progress in understanding disorders of consciousness;
2. Consider the various mechanisms and central nervous system networks implicated in loss of consciousness;
3. Review the role of electrophysiological modalities in the diagnosis and potential management of disorders of consciousness.
Agenda:
4:00pm  Introduction – Epilepsy as a Model for the Study of Consciousness
         Meriem Bensalem-Owen, MD, FACNS
4:10pm  The Role of Clinical Neurophysiology in the Evaluation of Coma & Disorders of Consciousness
         Peter W. Kaplan, MD, FRCP, FACNS
4:35pm  Sleep & the Different States of Consciousness
         Madeleine M. Grigg-Damberger, MD, FACNS
5:00pm  Syncope & the Borderland of Consciousness
         Kevin Nelson, MD
5:25pm  Discussion

1022: Mapping Epileptogenic & Functional Cortex in Tumor-Related Epilepsy
Location: Camelback
Session Director: Stephan U. Schuele, MD, MPH, FACNS
Objectives:
At the conclusion of the session, participants should be able to:
1. Discuss the value of long term EEG monitoring in tumoral epilepsy;
2. Determine the need for presurgical evaluation in this patient population;
3. Understand functional mapping in patients with TRE;
4. Understand the role of both intraoperative and extraoperative approaches to seizure localization in patients with brain tumors.
Agenda:
4:00pm  Diagnostic Video EEG Monitoring of Brain Tumors
         Jessica W. Templer, MD
4:20pm  Presurgical Evaluation in Tumor-Related Epilepsy
         Stephan U. Schuele, MD, MPH, FACNS
4:45pm  Functional Mapping
         Jeffrey Politsky, MD, FRCP(c)
5:10pm  ECoG vs. Invasive EEG to Identify Seizure Focus in TRE
         Michael R. Sperling, MD, FACNS
5:25pm  Discussion

1023: Clinical Neurophysiology Around the World
Location: Maryvale A
Session Director: Ioannis Karakis, MD, PhD, MSc
Objectives:
At the conclusion of this session, participants should be able to:
1. Understand the availability, accessibility and affordability of clinical neurophysiological testing and its application for the diagnosis of neurological disorders around the world;
2. Propose strategies to bridge the diagnostic gap between lower and higher income countries.
Agenda:
4:00pm  Clinical Neurophysiology in Africa
         Jaffar Khan, MD
4:25pm  Clinical Neurophysiology in Asia
         Chong Tin Tan, MD, FRCP
4:50pm  Clinical Neurophysiology in South America
         Jorge G. Burneo, MD
5:15pm  Clinical Neurophysiology in the Western World
         Ioannis Karakis, MD, PhD, MSc

1024: SIG: Clinical Neurophysiology Resident & Fellows Special Interest Group
Location: Maryvale B
Session Director: Andrea Hakimi, DO, FACNS
This session will highlight cases submitted by Residents and Fellows on a variety of Clinical Neurophysiology topics or quality improvement projects.
Objectives:
1. Describe selected clinical neurophysiology cases or quality improvement projects completed by trainees;
2. Engage in an informal discussion of the selected cases or projects and offer his or her opinion regarding different approaches to each case or project with emphasis on learning points.
Agenda:
4:00pm  Introduction
         Andrea Hakimi, DO, FACNS
4:05pm  Harpooning the Cingulate: sEEG & Cortical Mapping in a Patient with Lesional Frontal Lobe Epilepsy
         Sotiris G. Mitropoulos, MD
4:25pm  Quality Improvement Project: Effect of Automatic SPEC Injectors (ASI) on the Safety & Yield of Ictal SPECT Studies
         Ahmed Yassin, MD
4:45pm  Treating Focal Epilepsy with Continuous Cortical Stimulation
         Brian Lundstrom, MD, PhD
5:05pm  Correlation Between Electrophysiological Markers & Autonomic Variables in Epilepsy Patients Undergoing Phase II Presurgical Evaluation
         Mauricio F. Villamar, MD
5:25pm  Discussion
Program Agenda | Annual Meeting
Friday, February 10, 2017

1025: Joint ACNS/Mexican Society of Clinical Neurophysiology Symposium: Beyond Rhythms & Spikes: How the EEG Can Reveal the Dysfunctional Dynamics of Complex Networks in Psychiatric & Neurodevelopmental Disorders
Location: Deer Valley
Session Directors: Claudia Paz, MD & Armando Tello, MD, PhD
Objectives:
At the conclusion of this session, the participant should be able to:
1. Demonstrate the need of complex network studies in both psychiatric and neurodevelopmental disorders.

Agenda:
4:00pm The Crossroads of Anxiety: Distinct Neurophysiological Maps for Different Symptomatic Groups
Montserrat Gerez, MD, PhD
4:25pm Praxis & Visuo-Motor Network Function in Healthy Subjects & Autism Spectrum Disorders (ASD)
Joshua Ewen, MD, FACNS
4:50pm QEEG in Obsessive Compulsive Disorder
Humberto Nicolini, MD, PhD

5:30-5:45PM Walking Break

5:45-7:00PM General Session
Location: Valley of the Sun DE
5:45pm JCN Award Presentation
Aatif M. Husain, MD, FACNS, Editor-in-Chief
5:55pm Neurophys Bowl
Location: Valley of the Sun DE
Director: Sarah Schmitt, MD

7:00-8:30PM Welcome Reception
Location: Encanto

Saturday, February 11, 2017

7:00-8:00AM Continental Breakfast
Location: Encanto
Visit Exhibits
Location: Encanto
Poster Viewing
Location: Estrella & South Mountain

8:00-9:30AM Concurrent Sessions
1111: Interpreting Challenging NCS & Needle EMG Findings - An Interactive Case-Based Approach
Location: Maryvale A
Session Director: Devon I. Rubin, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Learn to interpret and know the significance of unusual NCS patterns;
2. Understand the significance of unusual needle EMG waveforms;
3. Recognize artifactual responses that may affect interpretation of NCS and needle EMG studies.

Agenda:
8:00am Challenging NCS & Needle EMG Findings - 1
Paul E. Barkhaus, MD
8:30am Challenging NCS & Needle EMG Findings - 2
Elliot Dimberg, MD, FACNS
9:00am Challenging NCS & Needle EMG Findings - 3
Devon I. Rubin, MD, FACNS

1112: Aggressiveness of Treatment of Refractory Status Epilepticus: A Clinical Neurophysiology Approach
Location: Paradise Valley
Session Director: Frank W. Drislane, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Diagnose types of refractory SE and their different severities;
2. Understand the complications of aggressive treatment of refractory SE, and how to avoid them;
3. Manage patients in refractory SE and in ‘therapeutic coma’;
4. Understand the role of continuous EEG in aiding these decisions.

Agenda:
8:00am Patients with Refractory Status Epilepticus should be Treated Aggressively
Lawrence J. Hirsch, MD, FACNS
8:30am Aggressive Treatment of Patients with Refractory Status Epilepticus can be Dangerous for Their Health
Peter W. Kaplan, MD, FRCP, FACNS
9:00am Trying to get the Best of Both Positions
Frank W. Drislane, MD, FACNS
Program Agenda | Annual Meeting
Saturday, February 11, 2017

1113: Competing Techniques for Refining the Location of the Epileptogenic Zone: Magnetoencephalography & High Density EEG
Location: Camelback
Session Director: Richard C. Burgess, MD, PhD, FACNS

Objectives:
At the conclusion of this session, participants should be able to:
1. Describe the similarities of the fundamental signals evaluated, the source localization methods, and the co-registration requirements of MEG and HDEEG;
2. Explain the differences in the sensitivity and accuracy of the two techniques, including the theoretical reasons for these differences;
3. Incorporate the results of these specialized clinical neurophysiological localization techniques into the evaluation of their patients with knowledge of their advantages and limitations.

Agenda:
8:00am  Comparison of Intracranial EEG Potentials with Source Localization from Scalp EEG & MEG: Location Accuracy & Implantation Guide
        Eliane Kobayashi, MD, PhD
8:30am  Simultaneous High Density Scalp EEG & MEG
        Robert C. Knowlton, MD
9:00am  Theoretical & Practical Considerations for Localization of the Epileptogenic Zone from High Density EEG & MEG
        Richard C. Burgess, MD, PhD, FACNS

1114: Cortical Stimulation: Theory & Practice
Location: Deer Valley
Session Director: Giridhar Kalamangalam, MD, DPhil, FACNS

Objectives:
At the conclusion of this session, participants should be able to:
1. Hold a basic understanding of the physical effects of electricity in the cortex;
2. Understand neural responses to electrical stimulation;
3. Describe the physiological aspects of cortical stimulation.

Agenda:
8:00am  Physiology of Non-Invasive Cortical Stimulation
        Mark Hallett, MD, FACNS
8:20am  Measuring & Modifying Cortical Excitability with AEDs
        Ulf Ziemann, MD
8:40am  Modelling the Effects of Cortical Stimulation: Afterdischarge
        Giridhar Kalamangalam, MD, DPhil, FACNS
9:00am  From Science to Bedside: Eloquent Function Mapping
        Anthony L. Ritaccio, MD
9:20am  Panel Discussion

1115: Joint ACNS/ASECN (Argentinian Society) Symposium: Innovations in NIOM Interpretation
Location: Maryvale B
Session Director: Martin J. Segura, MD, PhD

Objectives:
At the end of this session, participants should be able to:
1. Explain the advantages of a new multiparametric warning-criterion for MEP-NIOM that integrates into a single ratio changes in the amplitude, area under the curve, duration, number of phases, and latency; and in addition, to present a new gold standard that allows distinguishing between surgically elicited intraoperative MEP changes that have reverted due to interventions from false positive results of anesthetic/technical origin;
2. Propose a plan of action to promptly and orderly react to intraoperative neurophysiological alarms: A guide that includes from a simple technical and anesthesiological checklist to identify false positive findings to the ascertainment of a true positive result leading to the interruption and reversal of surgical steps which must be executed with swift action, by the neurophysiologist, anesthesiologist, and surgeon in a sequenced and coordinated fashion;
3. Discuss the advances in interpretation of SEP and BAEP alarm criteria. A discussion regarding the current criteria and its shortcomings will be noted. Advances made in the last few years on revising these criteria will be presented.

Agenda:
8:00am  A New Warning Criterion for MEP-NIOM & an Alternative Gold Standard to Better Identify “False Positive” Findings
        Martin J. Segura, MD, PhD
8:25am  Proposed Algorithm for Decision Making in the Face of Neurophysiological Alarms During Spinal Deformity Surgeries
        Ricardo J. Ferreira, MD
8:50am  New Alarm Criteria for SEP/BAEP Monitoring
        Parthasarathay Thirumala, MD, FACNS
9:15am  Discussion

9:30-10:00AM
Coffee Break
Visit Exhibits
Poster Viewing
Location: Estrella & South Mountain
10:00-11:00AM  
**General Session: Travel Award Presentation & Jasper Award Lecture**  
Location: Valley of the Sun DE  
Agenda:  
10:00am  Young Investigator Travel Award Presentation  
Frank W. Drislane, MD, FACNS & Meriem Bensalem-Owen, ND, FACNS  
10:15am  Introduction & Jasper Award Presentation  
Jonathan C. Edwards, MD, MBA, FACNS  
10:20am  Jasper Award Lecture: The Epileptogenic Zone  
Hans Lüders, MD, PhD, FACNS

11:00-11:15AM  
**Walking Break**

11:15AM-12:45PM  
**Concurrent Sessions**  
**1131: IFCN Symposium: The Clinical Neurophysiology of Neuromuscular Disease**  
Location: Paradise Valley  
Session Director: Mark Hallett, MD, FACNS  
Objectives:  
At the conclusion of this session, participants should be able to:  
1. Understand that different axonal properties can predispose to dysfunction in peripheral nerve disease;  
2. Demonstrate how SFEMG can improve the diagnoses of neuromuscular junction disorders and neuropathies;  
3. Understand the role played by different methods used in the evaluation of sensory function.  
Agenda:  
11:15am  Action Potential & Impulse Conduction in Human Myelinated Axons  
David Burke, MD, DSc  
11:45am  SFEMG in Neuromuscular Disease  
Liying Cui, MD  
12:15pm  Evaluation of Sensory Neuropathies  
Renato Verdugo, MD

**1132: Consensus for Recording & Analysis of Wide-Band EEG in Clinical Epilepsy**  
Location: Camelback  
Session Director: Akio Ikeda, MD, PhD  
Objectives:  
At the conclusion of this session, participants should be able to:  
1. Discuss recording and analysis of both slow shifts and HFO in clinical epilepsy by means of macroinvasive electrode.  
Agenda:  
11:15am  Interictal Slow Shifts by Macroinvasive Electrodes  
Akio Ikeda, MD, PhD  
11:35am  Ictal Slow Shifts by Macroinvasive Electrodes  
Pradeep Modur, MD, FACNS  
11:55am  High Frequency Oscillation (HFO) by Microelectrodes  
Gregory Worrell, MD  
12:15pm  High Frequency Oscillation (HFO) by Macroinvasive Recording  
Jean Gotman, PhD, FACNS

**1133: Uso de EEG en Cuidado Intensivo (Use of EEG in the ICU)**  
Note: This session will be presented in Spanish.  
Location: Deer Valley  
Session Director: Adriana Bermeo-Ovalle, MD, FACNS  
Objectives:  
At the conclusion of the session, participants should be able to:  
1. Discuss the advantages and limitations of the use of EEG in the ICU;  
2. Discuss the EEG patterns most frequently seen in patients in the ICU setting as well as patterns of unclear significance;  
3. Understand the principles of quantitative EEG and its use in the Neuro ICU;  
4. Discuss the use of EEG for the diagnosis and management of status epilepticus.  
Agenda:  
11:15am  Aspector Tecnicos, Limitaciones y Ventajas del uso de EEG en la UCI (Technical Aspects, Advantages & Limitations of the Use of EEG in the ICU)  
Adriana S. Tannen, MD  
11:40am  Patrones Confusos de EEG en la UCI: Status Triphasis vs. Status Epiléptico (Patterns in the ICU: Status Triphasis vs. Status Epilepticus)  
Andres M. Kanner, MD  
12:05pm  Principios y uso de EEG Cuantitativo en UCI (Principles & Use of qEEG in ICU)  
Adriana Bermeo-Ovalle, MD, FACNS  
12:25pm  Uso de EEG para Diagnostico y Manejo de Status Epilepticos (Use of EEG for Diagnosis & Management of Status Epilepticus)  
Juan G. Ochoa, MD
12:45-2:00PM
Lunch
Visit Exhibits
Location: Encanto
Poster Tours
Location: Estrella & South Mountain

1:30-2:00PM
Annual Business Meeting
Location: Valley of the Sun DE

2:00-3:30PM
Concurrent Sessions
1151: Nerve Conduction Testing in Entrapment Neuropathies
Location: Maryvale A
Session Director: Gloria M. Galloway, MD, MBA, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Understand possible underlying etiologies of common entrapment neuropathies and nerve conduction techniques used in diagnosis.

Agenda:
2:00pm  Common Entrapments of the Upper Extremities
        Gloria M. Galloway, MD, MBA, FACNS
2:15pm  Common Entrapments of the Lower Extremities
        Mark Ross, MD, FACNS
2:30pm  Workshop Skills Session
        Jaime R. Lopez, MD, FACNS
3:00pm  Workshop Skills Session
        Gloria M. Galloway, MD, MBA, FACNS
        Mark Ross, MD, FACNS

1152: Advances in Prognostication & Management of Coma Following Cardiac Arrest
Location: Paradise Valley
Session Director: M. Brandon Westover, MD, PhD
Objectives:
At the conclusion of this session, participants should be able to:
1. Summarize key prognostic EEG findings in adult HIE, their statistical value as predictors of favorable and poor neurologic outcome, and identify gaps in knowledge.
2. Summarize recent advances in quantitative EEG (QEEG) in the setting of HIE, including the use of “Big Data” and advanced statistical learning approaches to providing neurologists with more powerful tools to predict outcomes in HIE.
3. Understand the rationale and findings to date of TELSTAR, an ongoing randomized trial investigating the utility of seizure interventions in postanoxic status epilepticus.
4. Understand research on new modalities for monitoring the nervous system function and recovery in HIE, including, trends in electrodermal activity data, and quantitative methods for assessing cerebral reactivity to external stimulation;
5. Execute collaborative research by providing a forum to define research priorities and discuss the design of future investigations in adult HIE.

Agenda:
2:00pm  Neurostimulation: Why Does it Work & What are the Future Directions?
        Dawn Eliashiv, MD, FACNS
2:20pm  New Insights to Vagus & Trigeminal & Tachycardia Based Closed Loop Neurostimulation
        Christopher DeGiorgio, MD
2:40pm  Strategies in Patient Selection & Parameter Setting with Responsive Neurostimulation
        Lawrence J. Hirsch, MD, FACNS
3:00pm  Added Value of Deep Brain Stimulation in Epilepsy
        Robert Gross, MD, PhD
3:20pm  Discussion

1153: Neurostimulation & Networks: Management of Refractory Epilepsy
Location: Camelback
Session Director: Dawn Eliashiv, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Define the role of neurostimulation in the algorithm of managing patients with refractory epilepsy;
2. Update the knowledge base on the mechanism of action of neurostimulation modulation versus stimulation and interactions with networks;
3. Define strategies of setting parameters for neurostimulations Choose appropriate neurostimulator for specific clinical scenarios.

Agenda:
2:00pm  Self-Fulfilling Prophecies, Moral Dilemmas, & the Need for Quantitative Knowledge in Hypoxic Ischemic Encephalopathy
        M. Brandon Westover, MD, PhD
2:10pm  Advances in the Qualitative & Quantitative Interpretation of Prognostic EEG Features
        Michel J. van Putten, MD, MSc, PhD
2:30pm  Quantitative Assessment of EEG Background Reactivity in Hypoxic Ischemic Encephalopathy
        Edilberto Amorim, MD
2:45pm  Quantifying Dynamic EEG Features in Prognosis of Hypoxic Ischemic Encephalopathy
        Mohammad Ghassemi, DPhil
3:00pm  Electrodermal Activity Trends in Hypoxic Ischemic Encephalopathy
        Jong Woo Lee, MD, PhD, FACNS
3:20pm  Treatment of Electroencephalographic Status Epilepticus after Cardiopulmonary Resuscitation:
        The TELSTAR Trial
        Barry Ruijter, MSc
1154: Cortico-Cortical Evoked Potentials & High Frequency Oscillations – Brain Mapping Made Easy
Location: Deer Valley
Session Director: Daniela Minecan, MD, FACNS

Objectives:
At the conclusion of this session, participants should be able to:
1. Understand basic concepts of cortico-cortical evoked potentials and high frequency oscillations;
2. Recognize practical applications for brain mapping of basic science concepts;
3. Discuss pros and cons of the newer techniques versus the standard cortical stimulation techniques.

Agenda:
2:00pm  The ABCs of High Frequency Oscillations & their Clinical Relevance
        Rafeed Alkawadri, MD
2:20pm  Cortico-Cortical Evoked Potentials – A Practical Review
        Aiko Ikeda, MD, PhD
2:40pm  Language Mapping – High Gamma Activity & Cortico-Cortical Evoked Potentials Recordings
        Anthony L. Ritaccio, MD
3:00pm  Wrap Up & Future Directions
        Anthony L. Ritaccio, MD

1155: Joint ACNS/IFCN Latin America Chapter Symposium: Transcranial Motor Evoked Potentials Warning Criteria
Location: Maryvale B
Session Director: Paulo Andre Kimaid, MD, PhD

Objectives:
At the conclusion of this session, participants should be able to:
1. Discuss the different warning criteria of transcranial MEP and their peculiarities;
2. Understand the pros and cons of each warning criteria.

Agenda:
2:00pm  The Amplitude Decrease Warning Criteria
        Paulo Andre A. Kimaid, MD, PhD
2:30pm  The Threshold Level Warning Criteria
        Jaime R. Lopez, MD, FACNS
3:00pm  The All-or-Nothing Warning Criteria
        Francisco Soto, MD

3:30-3:45PM Walking Break

3:45-5:15PM Concurrent Sessions
1161: Understanding the Utility of Stereo Electroencephalography (SEEG) in Intractable Focal Epilepsy through Illustrative Cases
Location: Paradise Valley
Session Director: Jun T. Park, MD

Objectives:
At the conclusion of this session, participants should be able to:
1. Explain the concepts of SEEG;
2. Describe the advantages and disadvantage of stereoelectroencephalography (SEEG) in adults and children;
3. Explain how SEEG may be preferred over subdural grids and used in selected patients with drug resistant focal epilepsy.

Agenda:
3:45pm  Guiding Principles Behind Stereo Electroencephalography
        Hans Lüders, MD, PhD, FACNS
4:15pm  Implantation Approach: Adults, Children
        Jonathan Miller, MD, FACNS
4:35pm  Illustrative Cases: Adults
        Guadalupe Fernandez Baca Vaca, MD
4:55pm  Illustrative Cases: Children
        Asim Shahid, MD

Location: Camelback
Session Director: Barbara Jobst, MD & Elson Lee So, MD, FACNS

Objectives:
At the conclusion of this session, participants should be able to:
1. Recognize which peri-ictal neurophysiological and behaviors can be utilized with current technology for detecting or predicting seizure occurrence;
2. Know the evidence for accuracy and reliability of currently available wearables in detecting or predicting seizure occurrence;
3. Counsel patients on the pros and cons of purchasing and using currently available wearables for detecting their seizures.

Agenda:
3:45pm  Introduction
        Elson Lee So, MD, FACNS
3:50pm  Why the Need for Seizure Detection Wearables
        Barbara Jobst, MD
4:00pm  Which Peri-ictal Neurophysiological Changes?
        Daniel Friedman, MD
4:25pm  How Accurate are Current Seizure Detection Wearables?
        Tobias Loddenkemper, MD, FACNS
4:50pm  Open Forum with Audience Participation
1163: The Frontal Lobe Club
Location: Maryvale A
Session Director: Daniela Minecan, MD, FACNS
Objectives:
At the conclusion of this session, the participant should be able to:
1. Recognize the functional anatomy of the frontal lobe, which plays a fundamental role in understanding and localizing various frontal lobe seizure semiologies;
2. Review the various types frontal seizures;
3. Discuss the optimal and state of the art approach and planning of invasive monitoring (stage II presurgical evaluation) for this subset of patients given the recent advances in stereo EEG.

Agenda:
3:45pm The Functional Anatomy of the Frontal Lobe
Daniela Minecan, MD, FACNS
4:00pm Frontal Lobe Seizure Subtypes with a Focus on Semiology
Rafeed Alkawadri, MD
4:20pm Frontal Lobe Seizures – Invasive Monitoring Approaches
Juan Bulacio, MD
4:40pm Frontal Lobe Seizures – What about the Children?
Elia M. Pestana-Knight, MD, FACNS
5:00pm Wrap Up & Recommendations for Frontal Lobe Epilepsy
Stephan U. Schuele, MD, MPH, FACNS

1164: Proponents vs. Opponents: You Really Mean I Need to Order a MEG in 2017?
Location: Maryvale B
Session Director: Anto Bagic, MD, PhD, FACNS
In spite of having the two key debaters representing opposing views, the program invites and expects a strong audience participation in a discussion, including sharing direct personal experiences and very brief case examples.

Objectives:
At the conclusion of this session, participants should be able to:
1. Understand the prevailing patterns of the current MEG use in presurgical evaluation of patients with epilepsy in the NAEC-accredited epilepsy centers;
2. Understand the specific strengths and limitations of MEG and its role in presurgical evaluation of patients with epilepsy;
3. Recognize the key evidence-supported indications for MEG in presurgical evaluation of patients with epilepsy.

Agenda:
3:45pm Informed Skeptic – We Wish, We Profess, but thus Spoke the NAEG Centers’ Directors
Anto Bagic, MD, PhD, FACNS
4:10pm Enlightened Proponent – If you just could See How it Works in Our Hands...
Richard C. Burgess, MD, PhD, FACNS
4:35pm Enlightened Opponent – Know What you Have & When to Use It!
Ronald Lesser, MD, FACNS
5:00pm Discussion

5:30-7:00PM General Session: Research Highlights & Schwab Award Lecture
Location: Valley of the Sun DE
Session Chair: Frank W. Drislane, MD, FACNS
Agenda:
5:30pm Research Highlights
Jonathan J. Halford, MD, FACNS and Lawrence J. Hirsch, MD, FACNS
5:35pm F4 - Phenotypes of Post-Anoxic Myoclonus do not Predict Outcome
Alexandra Reynolds, MD
5:45pm F5 - Seizure Prediction on cEEG: A Multistate Survival Analysis
Gamaleldin M, MD, MSc
5:55pm F42 - Analysis of Cross-Over Motor Evoked Potentials for Intraoperative Monitoring of Cranial Surgeries
Vahe Akopian, MD
6:15pm Introduction & Schwab Award Presentation
Mark Hallett, MD, FACNS
6:05pm Discussion
6:20pm Schwab Award Lecture: Modern Clinical Neurophysiology in ALS-Tracing Lower & Upper Motor Neuron Involvement
Reinhard Dengler, MD
Program Agenda | Annual Meeting
Saturday, February 11, 2017

7:00-8:00PM
Keynote Lecture
Location: Valley of the Sun DE

7:00pm  Introduction
Frank W. Drislane, MD, FACNS

7:05pm  Lecture and Performance: “Neurology of Musical Masters”
Phillip Pearl, MD, FACNS

Sunday, February 12, 2017

7:00-8:00AM
Continental Breakfast
Location: Valley of the Sun Foyer

8:00-9:30AM
Concurrent Sessions
1201: Joint ACNS/DGKN (German Society) Symposium: The Role of Neurophysiology for Acute Sports Injuries
Location: Deer Valley
Session Director: Claus Reinsberger, MD, PhD

Objectives:
At the conclusion of this session, participants should be able to:
1. Understand the role of neurophysiology in the acute diagnosis and treatment of sports related injuries of the central nervous system;
2. Understand the role of neurophysiology in the acute diagnosis and treatment of sports related injuries of the peripheral nervous system;
3. Understand the role of sleep in the prevention of sports injuries and disturbances of sleep architecture induced by sports injuries.

Agenda:
8:00am  Neurophysiological Assessment of Acute Sports Related Peripheral Nerve Injuries
Reinhard Dengler, MD

8:30am  Neurophysiological Assessment of Acute Sports Related Injuries of the Central Nervous System
Claus Reinsberger, MD, PhD

9:00am  Sleep & Sports Injuries – Prevention, Sleep Post Concussion & Circadian Shifts
Madeleine Grigg-Damberger, MD, FACNS

1202: Neurophysiologic Intraoperative Monitoring of Vascular Disorders
Location: Paradise Valley
Session Director: Jaime R. Lopez, MD, FACNS

Objectives:
At the conclusion of this session, participants should be able to:
1. Review the correlation between cerebral ischemia and changes in evoked potentials and EEG;
2. Understand the rationale for using the different NIOM techniques in identifying, brain, spinal cord and peripheral nerve ischemia and dysfunction;
3. Describe the different vascular surgical procedures and the corresponding neural regions at risk for injury;
4. Understand how NIOM can alter operative management and improve patient safety.

Agenda:
8:00am  NIOM of Cerebrovascular Surgery & Endovascular Procedures
Jaime R. Lopez, MD, FACNS

8:25am  Neurophysiologic Monitoring of Aortic Aneurysm Repair
Leslie H. Lee, MD, FACNS, FAAN

8:50am  NIOM of Cardiac Surgery
Michael McGarvey, MD, FACNS

9:15am  Case Presentations & Discussion
Program Agenda | Annual Meeting
Sunday, February 12, 2017

1203: Advances to Improve Accuracy in EEG Interpretation
Location: Maryvale A
Session Director: Suzette M. LaRoche, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Understand technological advances in automated detection of interictal epileptiform activity;
2. Recognize criteria for determination of reactivity and be familiar with how quantitative EEG techniques may be able to improve accuracy in reactivity determination;
3. Utilize standardized critical care EEG terminology for the description of periodic and rhythmic patterns;
4. Describe the most recently published criteria for non-convulsive status epilepticus and be familiar with clinical assessments that can help differentiate between interictal and ictal activity.

Agenda:
8:00am Automate Detection of Interictal Epileptiform Activity
Jonathan J. Halford, MD
8:20am Determination of Reactivity in the Comatose Population
M. Brandon Westover, MD, PhD
8:40am Standardized Critical Care EEG Terminology
Suzette M. LaRoche, MD, FACNS
9:00am Defining & Diagnosing Non-Convulsive Status Epilepticus
Emily J. Gilmore, MD

1204: SIG: Invasive EEG – Interictal Epileptiform Activity & Beyond
Location: Camelback
Session Director: Stephan U. Schuele, MD, MPH, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Discuss the utility of intraoperative Electrocorticography;
2. Understand the pros and cons of various approaches;
3. Understand the use of high frequency oscillation in the operating room.

Agenda:
8:00am EEG/MEG Source Imaging & Intracranial Correlation
John Ebersole, MD
8:15am Non-Epileptiform Interictal Abnormalities on ECoG
Douglas R. Nordli, MD, FACNS
8:30am Activation Methods: Pros & Cons
Andres M. Kanner, MD FANA
8:45am IED & HFO in the Operating Room
Gregory Worrell, MD
9:00am IED & HFO: Correlation with Ictal Onset Zone
Jean Gotman, PhD, FACNS
9:15am Discussion

9:30-10:00AM
Coffee Break
Location: Valley of the Sun Foyer

10:00-11:30AM
Concurrent Sessions
1211: Joint ACNS/Brazilian Society Symposium: The Neurology & Neurophysiology of Zika Virus
Location: Maryvale A
Session Director: Luis Otavio Caboclo, MD, MSc, PhD
Objectives:
At the conclusion of this session, participants should be able to:
1. Recognize the most common neurological symptoms associated with Zika;
2. Identify neurophysiological patterns of GBS associated with Zika;
3. Describe clinical and electroencephalographic characteristics of Zika.

Agenda:
10:00am Zika Virus Infection: The Outbreak of Zika-Associated Microcephaly
Eli M. Mizrachi, MD, FACNS
10:25am Zika Virus Encephalitis
Luis Otavio Caboclo, MD, MSc, PhD
10:50am Guillain-Barré Syndrome Associated with Zika Virus
Marcondes Franca, MD, PhD
11:15am Discussion

1212: Practical Applications of Unconventional Neurophysiologic Intraoperative Monitoring (NIOM) Techniques
Location: Paradise Valley
Session Director: Leslie H. Lee, MD, FACNS, FAAN
Objectives:
At the conclusion of this session, participants should be able to:
1. Describe less commonly utilized NIOM techniques including acquisition of pudendal/perianal and saphenous somatosensory evoked potentials (SSEPs), bulbocavernosus reflex, F-wave and H-reflex responses, and brainstem mapping;
2. Explain the practical applications and relevance of each of the above monitoring modalities in clinical practice;
3. Understand the implications of these studies, and the clinical significance of NIOM changes.

Agenda:
10:00am Practical Applications of Pudendal/Perianal & Saphenous Nerve SSEPs
Leslie H. Lee, MD, FACNS, FAAN
10:30am Practical Intraoperative Techniques & Applications: Bulbocavernosus Reflex, F-Wave, & H-Reflex Responses
Guillermo Martin Palomeque, MD
11:00am Practical Approach & Techniques of Intraoperative Brainstem Mapping
Mirela V. Simon, MD, MSc, FACNS
1213: Defining Research Priorities in Refractory Status Epilepticus Management
Location: Camelback
Session Director: Cecil D. Hahn, MD, MPH, FACNS & Jong Woo Lee, MD, PhD, FACNS
Objectives:
At the conclusion of this session, the participants should be able to:
1. Understand current management strategies for RSE in children and adults, and identify key gaps in knowledge;
2. Discuss the potential role for autonomous drug delivery systems to improve RSE management;
3. Recognize benefits of collaborative clinical investigation by providing a forum to define research priorities and discuss the design of future trials of RSE management in children and adults.
Agenda:
10:00am  RSE in Children: Current Management, Gaps in Knowledge, Research Priorities
        Tobias Loddenkemper, MD, FACNS
10:20am  RSE in Adults: Current Management, Gaps in Knowledge, Research Priorities
        Jong Woo Lee, MD, PhD, FACNS
10:40am  Clinical Trial Design & Individualized Therapy for RSE
        Nicolas Gaspard, MD, PhD
11:00am  Autonomous Drug Delivery Systems for RSE Management
        M. Brandon Westover, MD, PhD
11:15am  Planning Collaborative Clinical Trials for RSE Management
        Cecil D. Hahn, MD, MPH, FACNS

1214: Infantile Spasms: A Look at One Old Epilepsy in the Modern Era
Location: Deer Valley
Session Director: Elia M. Pestana Knight, MD, FACNS
Objectives:
At the conclusion of this session, participants should be able to:
1. Understand the new animal models of epileptic spasms and its role in the development of novel treatments for this disease;
2. Recognize the different clinical variant of epileptic spasms;
3. Discuss the electrographic variant of hypsarrhythmia and the importance of these patterns for the medical treatment algorithm;
4. Identify the electroclinical features of children with epileptic spasms who are candidates for epilepsy surgery.
Agenda:
10:00am  Animal Models of Epileptic Spasms & the Development of Novel Treatment Options
        Morris H. Scantlebury, MD
10:25am  Clinical Spectrum of Epileptic Spasms: From Classic to Subtle Forms & Across All Age Groups
        Elia M. Pestana Knight, MD, FACNS
10:50am  Variations of Hypsarrhythmia Pattern & Implications of its Identification in the Medical Management of Epileptic Spasms
        Elia M. Pestana Knight, MD, FACNS
11:10am  Electroclinical Features of Children with Epileptic Spasms who are Candidate to Epilepsy Surgery
        Ahsan Moosa Naduvil Valappil, MD
## Exhibits & Product Theaters

### Exhibit Floorplan

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Exhibit Hall Hours
FRIDAY, FEBRUARY 10, 2017
10:00AM – 4:00 PM  Exhibit Hall Open
10:00 – 10:30 AM  Coffee Break
12:15 – 1:30 PM  Lunch & Poster Viewing
3:30 – 4:00 PM  Coffee Break

SATURDAY, FEBRUARY 11, 2017
7:00AM – 1:30 PM  Exhibit Hall Open
7:00 – 8:00 AM  Continental Breakfast & Poster Viewing
9:30 – 10:00 AM  Coffee Break
12:45 – 1:30PM  Lunch
### Exhibits & Product Theaters

#### Exhibitors

**BRAIN SENTINEL, INC.**  
8023 Vantage Drive  
Suite 216  
San Antonio, TX 78230  
Phone: 855-275-5424  
Email: info@brainsentinel.com

Brain Sentinel is a privately held medical device start-up based in San Antonio, Texas. Brain Sentinel has submitted a novel Seizure Monitoring and Alerting System using surface EMG to the FDA for de novo market clearance. Through better, longitudinal, clinical information about motor seizure activity, Brain Sentinel wants to help epilepsy patients be heard in a way never before possible. Better information. Optimized treatment.

**CADWELL INDUSTRIES, INC.**  
909 N. Kellogg Street  
Kennewick, WA 99336  
Phone: 509-735-6481  
Fax: 509-783-6503  
Email: info@cadwell.com  
Website: http://www.cadwell.com

**COMPUMEDICS NEUROSCAN**  
5015 W. WT Harris Blvd.  
Suite E  
Charlotte, NC 28269  
Phone: 704-749-3220  
Fax: 704-749-3299  
Email: info@compumedicsusa.com

Compumedics Neuroscan provides complete research and clinical systems for acquiring and integrating neuroimaging data from all functional and structural data modalities including the CURRY Neuroimaging Suite software with advanced image processing and source localization capabilities. Products include SynAmpsRT digital amplifiers, Grael, and Neuvo Amplifiers, MicroMagLink RT for simultaneous EEG/fMRI data acquisition and soon to be released, CURRY MEG systems.

**ELECTRICAL GEODESICS, INC. (EGI)**  
500 East 4th Avenue  
Suite 200  
Eugene, OR 97401  
Phone: 541-687-7962  
Fax: 541-687-7963  
Website: http://www.egi.com

EGI offers neuromonitoring systems for clinical and research use. Dense array EEG systems feature 256 channels for the highest resolution brain monitoring and source estimation and the Geodesic Sensor Net for whole-head EEG capture. EGI offers products for LTM, ICU, and the complete neurology clinic including video EEG, ambulatory EEG, EMG/NCV, and EP. Come by our booth to see the new GeoSource 3 Research software and the new GTEN research system for neuromodulation.

**ELEKTA**  
Siltaaarenkatn 18-20  
Helsinki 00530  
Finland  
Phone: +358 9 756 2400  
Fax: +358 9 75624011  
Email: info.america@elekta.com  
Website: http://www.elekta.com

Elekta is a global leader in magnetoencephalography (MEG) instrumentation with over 100 systems installed, now available with zero helium boil-off technology. MEG is completely non-invasive, mapping brain activity with millimeter-millisecond resolution. Clinically, MEG is accepted for pre-surgical planning, especially in epilepsy, and it continues to offer unique insights in neuroscience research.

**EMPATICA**  
One Broadway  
Cambridge, MA 02142  
Phone: 857-600-0857  
Email: sales@empatica.com  
Website: http://www.empatica.com

Empatica wearable devices have clinical-quality sensing capabilities, targeting the neurological disease space. The company’s first product, the E4, is the smallest wearable research device for continuous human physiology and behavior measurement. Empatica sells the E4 top universities, hospitals and pharmaceutical companies where is used in hundreds of research and clinical studies worldwide. While building wearables to measure emotional stress, Rosalind Picard, the company’s Chief Scientist and MIT Professor, learned that deep brain activation during seizures manifests with an electrodermal-response on the wrist. This led Empatica to develop a wristband, “Embrace” that is worn to alert to potentially life-threatening neurological events.

**ENCEPHALODYNAMICS, INC.**  
502 NW 16th Avenue  
Suite #3-4  
Gainesville, FL 32601  
Phone: 352-327-9127  
Fax: 855-359-6341  
Email: info@encephalodynamics.com  
Website: http://www.encephalodynamics.com

**EPITEL, INC.**  
630 S. Stringfellow Ct.  
Unit #B  
Salt Lake City, UT 84111  
Phone: 801-497-6297  
Email: info@epitelinc.com  
Website: http://www.epitelinc.com

Epitel develops wireless transmitter and data logging systems for both pre-clinical animal models of human disease and validated clinical wearables. Epitel's Epoch wireless biopotential monitoring system is for long-term recording of EEG from rodent models of seizures and epilepsy. Epitel is developing Epilog, a discreet wearable for seizure counting using EEG for people living with epilepsy. Watertight and disposable, Epilog is meant to be used after a diagnosis to record continuous EEG. Epilog is attached to the scalp for 7 days allowing the wearer to go about their daily activities, including bathing.
Exhibits & Product Theaters

Exhibitors

IVES EEG SOLUTIONS
25 Storey Ave
Suite 118
Newburyport, MA 01950
Phone: 978-358-8006
Fax: 978-358-7825
Website: http://www.iveseegsolutions.com

LIFELINES NEURODIAGNOSTIC SYSTEMS
411 Edwardsville Road
Suite A
Troy, IL 62294
Phone: 618-667-6445
Fax: 618-667-1982
Email: sales@lifelinesneuro.com
Website: http://www.lifelinesneuro.com

Lifelines Neurodiagnostic Systems is celebrating 15 years as a pioneer in EEG. The acceptance of our Cloud-based, interactive EEG solution now has tens of thousands of days of video EEG stored in the Cloud in a secure, encrypted, HIPAA-compliant environment. We implement our mission, Changing Lives Through Neurodiagnostic Innovation, by providing solutions that are easy and efficient for clinicians with innovative solutions like the Jordan WIEEG BraiNet and eight-channel EEG amplifier. This product enables the clinician to quickly assess the EEG recorded in the ED from a remote internet connection. The Virtual EMU allows a patient to have their long-term video EEG recorded in the comfort of their own home, and the Incereb EEG electrode arrays simplify neonatal EEG monitoring. Lifelines is quickly developing a reputation for being the market expert at recording high-quality EEG in the most difficult of places.

MEDICAL PRACTICE SOLUTIONS, LLC
3400 Waterview Parkway
Suite 310
Richardson, TX 75080
Phone: 214-295-6703
Website: http://www.medipracticesolutions.com

Medical Practice Solutions LLC provides efficient IOM revenue cycle management services for healthcare providers and medical facilities. Our experience and proven success, with highly skilled professionals who utilize an out of network process to ensure an increased return on billed charges to improve your financial strength.

MEDIMAX TECH, INC.
2805 E. Ana St.
East Rancho Dominguez, CA 90221
Phone: 855-633-4629
Fax: 866-526-2314
Email: malorie@medimaxtech.com
Website: http://www.medimaxtech.com

MediMax Tech (MMT) manufactures neurological, surgical and electrotherapy/chiropractic supplies and products. Since 2004, MMT has made it our mission to provide customers with highest quality medical products, cost effective savings and great customer service.

MOBERG ICU SOLUTIONS
224 S. Maple Street
Ambler, PA 19002
Phone: 215.283.0860
Fax: 215.283.0859
Email: info@moberg.com
Website: www.moberg.com

The Moberg Component Neuromonitoring System (CNS) provides continuous raw and quantitative EEG integrated with measurements from over 30 ICU monitors. The Moberg CNS Monitor allows providers to integrate and display EEG along with brain oxygen, cerebral microdialysis, NIRS, vital signs, and more. Customizable multimodal displays give greater visibility to data correlations, allowing providers to respond to critical patient care situations. The CNS Monitor is a platform for multimodal neuromonitoring that can be utilized by clinicians to help direct and individualize patient care. Other components include the CNS Reader, the CNS Multimodal Database, and the new 40-channel Advanced ICU Amplifier.

NATUS NEUROLOGY
3150 Pleasant View Road
Middleton, WI 53562
Phone: 800-356-0007
Email: madison.info@natus.com
Website: http://www.natus.com

NEURALYNX, INC.
105 Commercial Drive
Bozeman, MT 59715
Phone: 915-545-3191
Fax: 406-585-4542

Used in top-50 hospitals worldwide, Neuralynx’s ATLAS Neurophysiology System is the only DC capable, high-density EEG, EcOG and Human Single Unit solution – now for up to 512 channels! ATLAS operates as a research LTM while providing full clinical compatibility as a stand-alone system or in parallel with existing clinical systems. Neuralynx is also a leader in wireless digital telemetry, ultra-high-density, and real-time closed loop systems for epilepsy and pharmacological animal research. Decades of innovation, the loyal support of worldwide partners, and the drive to improve people’s lives – that’s why over 700 animal and clinical research labs choose Neuralynx.

NEUROPACE, INC.
455 N. Bernardo Ave
Mountain View, CA 94043
Phone: 650-237-2700
Fax: 650-237-2701
Email: info@neuropace.com
Website: http://www.neuropace.com

NeuroPace was founded to develop and market implantable devices for the treatment of neurological disorders with responsive stimulation. The RNS® System is an award-winning technology recognized for its innovation. Similar to a pacemaker that monitors and responds to heart rhythms, the RNS® System is the world’s first and only medical device that can monitor and respond to brain activity, and is designed to prevent seizures at their source.
Exhibits & Product Theaters

Exhibitors

NEUROTECH LLC
15285 Watertown Plank Road
Suite 2
Elm Grove, WI 53122
Email: vwolfe@neurotechcheeg.com
Website: http://www.neurotechcheeg.com

Neurotech is a leading service provider in LTM and Routine EEG in patient's home. We have offices in seven states working with both academic and private practice institutions. Neurotech provides EEG technical services to facilities to enhance their Routine or LTM EEG service. Neurotech, a JCAHO accredited facility, is a credentialed clinical training site for EEG students with the Institute of Health Sciences.

NIHON KOHDEN AMERICA, INC.
15353 Barranca Parkway
Irvine, CA 92618
Phone: 800-325-0283
Fax: 800-580-1550
Email: info@nkusa.com
Website: http://www.nkusa.com

Nihon Kohden's Neurology product portfolio includes instrumentation for Epilepsy Monitoring, Electroencephalography, EEG & PSG Ambulatory Recording, Polysomnography, Wireless EEG & PSG, Home Sleep Testing/PSG, Electromyography, Evoked Potentials, Intra-operative and cEEG ICU monitoring. Nihon Kohden's instrumentation offers the flexibility and expandability needed to meet the changing demands of today's neurodiagnostic field. In the U.S., the company is a trusted source for patient monitoring, sleep assessment, neurology and cardiology instrumentation solutions, and has been recognized for the highest customer satisfaction among U.S. hospitals and health systems for 40 consecutive quarters (MD Buyline). For more information, visit http://us.nihonkohden.com/.

PERSYST DEVELOPMENT CORPORATION
420 Stevens Avenue
Suite 210
Solana Beach, CA 92075
Phone: 858-461-4542
Fax: 858-461-4531
Website: http://www.persyst.com

Persyst is the world's leading supplier of EEG software for clinical applications. Persyst Seizure Detection, Spike Detection, Trending and Artifact Reduction is integrated and sold by every leading EEG manufacturer. Visit Persyst to see the future of EEG software.

RHYTHMLINK INTERNATIONAL, LLC
1140 First Street South
Columbia, SC 29209
Phone: 803-252-1222
Fax: 803-252-1111
Email: sales@rhythmlink.com
Website: http://www.rhythmlink.com

Rhythmlink International, LLC® works to enhance patient care worldwide by transforming medical device technology. By providing superior products, consistent availability, innovation and the highest level of customer service in the industry without wavering in our commitment to fair pricing, Rhythmlink has revolutionized the important physical connection between patients and the diagnostic equipment needed to record or elicit neurophysiologic biopotentials. In addition to designing, manufacturing and distributing medical devices, Rhythmlink provides custom packaging, private labeling, custom products and contract manufacturing to its customers.

RICOH COMPANY, LTD
3-2-3, Shinyokohama, Kohoku-ku
Yokohama-shi, Kanagawa-ken 222-8530
Japan
Phone: +81-50-3814-6714
Email: mitsuhiro.shindo@nts.ricoh.co.jp

Ricoh Company, Ltd. is a Japanese multinational company, producing electronic products, cameras and office equipment. Ricoh is the largest manufacturer of copiers in the world. In 2016, Ricoh acquired Yokogawa Inc. MEG, which launched Ricoh into the field of medicine. Ricoh is now focusing on the United States for clinical use and research, providing the MEG with its excellent axial gradiometers for deep brain explore and a user friendly interface for lightening the diagnosis tasks. We have gotten 510K and opened an office in San Jose so that we expect to be ready for sales soon.

RSC NEURO
331 Melrose Drive, Suite 145
Richardson, TX 75080
Phone: 877-333-2575
Fax: 800-840-8626
Email: jjackson@rscdiagnosticservices.com
Website: www.rscdiagnosticservices.com

RSC combines cutting edge telemedicine with academic caliber video-EEG in patients' homes and medical facilities. CLTM technologists review EEG data under supervision by an unparalleled panel of board certified and fellowship trained epileptologists. While an EMU is essential for planned medication changes, RSC meets or exceeds the EMU standard for observational diagnostic studies at a reduced cost. RSC is Redefining Seizure Care one patient at a time.

SAGE THERAPEUTICS
215 First Street
Cambridge, MA 02142
Phone: 617-299-8380

Sage Therapeutics is committed discovering and developing life-changing therapies to treat central nervous system (CNS) disorders, and we are dedicated in our pursuit to deliver new medicines with the goal of making life better for patients and their families.
Exhibitors

SIGNAL GEAR, LLC
27 Sweetwater Drive
Prosperity, SC 29127
Phone: 855-439-4327
Fax: 800-878-9804
Email: team@signalgear.com
Website: http://www.signalgear.com

Signal Gear is a medical device company focused on designing and developing neurodiagnostic accessories. Founded on the premise that passionate, thoughtful study is key to innovation and creativity, we study the scientific literature, the patient and clinical practice. Our goal is to provide the optimal patient product for each specialty, from the clinical office setting to the operating room, by tirelessly testing products in our electrical, mechanical, and clinical test labs. Let us show you advantages of our HOOK Near Field Monitoring Needle Pairs and SNS Urethral Catheter Electrode!

SPECIALTYCARE
214 Centerview Drive
Suite 100
Brentwood, TN 37027
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ROSA® is a Robotic Surgical Assistive device specifically designed for trajectory planning and guidance during functional neurosurgery, and is used in many large institutions throughout the US and worldwide. ROSA® has CE marking and FDA clearance, and now also includes ROSA® Spine for lumbar spinal application. ROSA® is owned by Zimmer Biomet. At Zimmer Biomet, we collaborate with healthcare professionals around the globe to advance the pace of innovation. Our products and solutions help treat patients suffering from disorders of, or injuries to, bones, joints or supporting soft tissues. Together with healthcare professionals, we help millions of people live better lives.
Exhibits & Product Theaters

Product Theaters

ACNS pleased to offer delegates the opportunity to explore in-depth the technologies and products available to assist them in developing state of the art neurophysiology programs, as well as the chance to extend their interaction with exhibitors beyond the exhibit hall in a more hands-on environment.

Each Product Theater is supported and programmed by a single supporting company and will feature presentations on topics and technologies selected by the corporate supporter. Please note that Product Theaters are non-CME sessions.

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### 3-D EEG/MEG MAPPING, SOURCE MODELING, AND INTRACRANIAL EEG ANALYSIS WITH CURRY 8

**Presented by:** Compumedics Neuroscan  
**Friday, February 10, 2017**  
**12:30 – 1:30pm**  
**Location:** Maryvale B  
**Instructors:** John S. Ebersole, MD, FACNS  
Michael Wagner, PhD

The clinical interpretation of LTM EEG and/or MEG can be significantly enhanced by a number of digital analysis techniques that are available in Curry software. This session will demonstrate the most exciting features of the new Curry 8 via live review and processing of raw data from pre-surgical evaluation cases. Data analysis will start with voltage and magnetic field mapping of individual spikes and proceed through automatic selection and segregation of spike types by template matching to modeling their cortical sources by individual dipoles, dipole clusters, and CSD distributions. 3-D anatomical correlation will be provided by an automated creation of realistic head and brain models for both more accurate data analysis and display of source solutions. Similar processing of seizure rhythms to determine ictal sources will also be demonstrated. Finally, intracranial EEG recordings will be interpreted using accurate anatomical localization of electrode contacts and by mapping spike and seizure voltage fields across cortical grids/strips and along depth electrodes.

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### REVELATIONS FROM CHRONIC AMBULATORY ECOG MONITORING: INSIGHTS FROM THE RNS® SYSTEM

**Presented by:** NeuroPace  
**Friday, February 10, 2017**  
**12:30 – 1:30pm**  
**Location:** Maryvale A

**Agenda:**  
Overview of RNS® System Long-Term Efficacy and Safety, Thoughts on Patient selection, Presentation of a Treatment Algorithm  
TBD  
Discoveries from Chronic Ambulatory ECoG Data  
Martha Morrell, MD
A CLINICAL TRIAL FOR SRSE

The STATUS Trial: for patients in super-refractory status epilepticus (SRSE)

A research study to evaluate the effectiveness and safety of SAGE-547 Injection, an investigational drug for patients with SRSE.

Patients 2 years of age or older who present with SRSE are eligible for enrollment if they:

- have failed 1st and 2nd line anti-epileptic drugs (AEDs), and
- are candidates to begin 3rd line agents or have already failed one or more wean attempts from 3rd line agents

SRSE is a condition in which patients experience continuous seizures (seizures that have little to no break between them). There are currently no FDA-approved treatments for SRSE.

For additional information or to refer a potential patient for the STATUS Trial, please visit www.statustrial.com
The International Federation of Clinical Neurophysiology, along with the American Clinical Neurophysiology Society (ACNS) and the Canadian Society of Clinical (CSCN) Neurophysiologists, cordially invites you to attend the 31st International Congress of Clinical Neurophysiology (ICCN 2018), May 1-6, 2018 in Washington, DC, USA.

More information, including a preliminary program call for poster abstracts, coming soon to www.acns.org and www.ifcn.info.