Electroencephalography (EEG), Electromyography (EMG) and Neurophysiology in Clinical Practice

Mayo Clinic School of Continuous Professional Development

Electroencephalography (EEG), Electromyography (EMG) and Neurophysiology in Clinical Practice

MAYO CLINIC FRANKE EDUCATION CENTER
PHOENIX, ARIZONA
JANUARY 26 – 31, 2020

CE.MAYO.EDU/EEGEMG2020

50 AMA PRA CATEGORY 1 CREDITS™
COURSE HIGHLIGHTS
This course will provide a comprehensive review of the techniques and topics pertaining to the clinical practice of neurophysiology, including both basic and advanced theory of practice. Included will be: basic physiology, pathophysiology, electroencephalography, evoked potentials, electromyography, movement disorders and intraoperative monitoring. There is a focus on clinical correlation of various neurophysiological tests used for the evaluation of patients with epilepsy, sleep disorders, movement disorders, peripheral nerve and neuromuscular disorders.

- Case-based presentations
- Interactive learning and use of voting keypads
- Workshops, Breakouts, and Lunch and Learn sessions
- Opportunity to earn MOC credit
- Q & A with Mayo Clinic Faculty from three campus locations

LEARNING OBJECTIVES
Upon conclusion of this program, participants should be able to:

- Identify commonly encountered interictal and ictal epileptiform findings on EEG.
- Review benign variants commonly mistaken (over-read) for epileptiform activity on EEG.
- Distinguish epileptiform activity from non-epileptiform activity seen in EEG.
- Interpret the findings and clinical significance of abnormalities on EEG studies.
- Identify EEG patterns for different spell types that can be seen during video EEG monitoring.
- Review the indications for long-term EEG monitoring in the acute hospital setting.
- Evaluate reading skills of routine EEG recognizing potentially confounding normal variants, artifacts and normal waveforms versus epileptiform activity.
- Recognize and interpret the significance of EMG waveforms on needle EMG.
- Develop a logical approach to the use of standard clinical electrophysiological techniques in the evaluation of common and uncommon neuromuscular disorders.
- Develop an approach to the use of the EMU.
- Review the application of ultrasound in assessment of neuromuscular disorders.

TARGET AUDIENCE
Practitioners (MD, DO, NP, PA, RN) interested in advancing their knowledge base in these areas and also technicians, who are expected to perform these procedures and have some understanding of the interpretation, are encouraged to attend.

MAYO CLINIC FACULTY

Susan Agostini, R. EP T., R. EEG T.
Sarah E. Berini, M.D.
Jonathan L. Carter, M.D.
Greg D. Cascino, M.D.
John N. Caviness, M.D.
Amy Z. Crepeau, M.D.*
Brian A. Crum, M.D.
Elliot L. Dimberg, M.D.
Joseph F. Drazkowski, M.D.
Brent P. Goodman, M.D.
Matthew T. Hoerth, M.D.
Ernest M. Hoffman, D.O., Ph.D.
Mithri Junna, M.D.
Julie A. Khoury, M.D.*
Ruple S. Laughlin, M.D.
Michelle L. Mauermann, M.D.
Iryna M. Musyka, M.D.
Elie Naddaf, M.D.
Katherine C. Nickels, M.D.
Katherine H. Noe, M.D., Ph.D.
Angela M. Parsons, D.O.
Devon I. Rubin, M.D.
Raj D. Sheth, M.D.
Michael H. Silber, M.B., Ch.B.
Joseph I. Sirven, M.D.
Benn E. Smith, M.D.
Elson So, M.D.
Eric J. Sorenson, M.D.
Scott D. Spritzer, D.O.
William Tatum, D.O.
James C. Watson, M.D.
Gregory A. Worrell, M.D., Ph.D.
*Course Directors

GUEST FACULTY

Mark A. Ross, M.D.
Specialty Care
Brentwood, TN
Three options are offered for registration:

**Option 1: EMG, EEG and Neurophysiology in Clinical Practice**  
**Sunday, January 26 – Friday, January 31, 2020**

**Option 2: EEG and Neurophysiology in Clinical Practice**  
**Sunday, January 26 – Tuesday (half day), January 28, 2020**

**Option 3: EMG and Neurophysiology in Clinical Practice**  
**Tuesday (full day), January 28 – Friday, January 31, 2020**  

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<thead>
<tr>
<th></th>
<th>Register on or before Jan 13, 2020</th>
<th>Register after Jan 13, 2020</th>
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<tbody>
<tr>
<td>Physicians/Scientists – Both EEG and EMG</td>
<td>$1,350</td>
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<td>Physicians/Scientists – EEG only</td>
<td>$750</td>
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<tr>
<td>Physicians/Scientists – EMG only</td>
<td>$925</td>
<td>$925</td>
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<tr>
<td>Residents, PAs and NPs – Both EEG and EMG</td>
<td>$900</td>
<td>$975</td>
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<tr>
<td>Residents, PAs and NPs – EEG only</td>
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<tr>
<td>Residents, PAs and NPs – EMG only</td>
<td>$660</td>
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<td>Neurodiagnostic technicians and students – EEG, EMG or both [must call (480) 301-4580 to register]</td>
<td>$300 - $700</td>
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<tr>
<td>EMG ABPN MOC/SAM</td>
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<td>EEG ABPN MOC/SAM</td>
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<tr>
<td>Printed syllabus – must be pre-ordered by January 8, 2020</td>
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CANCELLATION POLICY: Please visit ce.mayo.edu/cancellation for more information.

**COURSE DIRECTORS**

Amy Z. Crepeau, M.D.  
Julie A. Khoury, M.D.

**LOCATION AND ACCOMMODATIONS**

**Mayo Clinic Franke Education Center**  
5777 East Mayo Boulevard | Phoenix, Arizona 85054

**Residence Inn Phoenix Desert View at Mayo Clinic**  
5665 East Mayo Boulevard | Phoenix, Arizona 85054 | (480) 563-1500

Hotel rooms near Mayo Clinic Hospital are limited. You are urged to make reservations early. A limited block of guest rooms have been reserved for attendees at Residence Inn Phoenix Desert View at Mayo Clinic. Group rates will be honored three days prior and three days following the course dates, based upon space availability.

To receive the special rate of $239 per night, you must make reservations before the room block is filled and prior to the cut-off date of December 27, 2019. Please advise the reservation staff you are part of the Mayo Clinic EEG-EMG room block group. All reservations must be guaranteed with a major credit card. The hotel's room rates are subject to applicable state and local taxes (currently 12.57%) in effect at the time of check out. Parking fee is $5.00 plus tax, per vehicle per day.

Attendees are responsible for their own reservations. The standard hotel reservation cancellation policy will apply to individual reservations unless otherwise specified. Mayo Clinic School of CPD is not responsible for expenses incurred by an individual who is not confirmed and for whom space is not available at the meeting.
Sunday, January 26, 2020

7:00 a.m. Registration and Continental Breakfast
7:45 Welcome and Introductions
   Amy Z. Crepeau, M.D.
8:00 EEG Pretest
8:15 Nuts and Bolts: Polarity
   Joseph F. Drazkowski, M.D.
9:00 Adult EEG: Normal/Variants
   Joseph I. Sirven, M.D.
9:45 Adult EEG: Coma/Encephalopathy/Brain Death
   Elson So, M.D.
10:30 Refreshment Break
10:45 Adult EEG: Epileptiform Activity and Seizures
   Joseph I. Sirven, M.D.
11:30 EEG in Status Epilepticus
   Katherine H. Noe, M.D., Ph.D.
12:15 - 12:45 p.m. Lunch
12:45 - 2:15 Lunch and Learn Breakout Sessions (30 minutes each)
   Basic Approach to Interpretation and Reports - Scott D. Spritzer, D.O.
   EEG Artifact Challenge - Matthew T. Hoerth, M.D.
   EEG Epileptiform or Not? - William Tatum, D.O.
   2:15 Refreshment Break
   2:30 EEG Billing and Coding
      Susan Agostini, R. EP T., R. EEG T.
   3:15 EEG Misadventures
      William Tatum, D.O.
4:00 Adjourn

Monday, January 27, 2020

7:00 a.m. Continental Breakfast
8:00 Pediatric EEG: Normal
   Raj D. Sheth, M.D.
8:45 Pediatric EEG: Epileptiform
   Katherine C. Nickels, M.D.
9:30 Prolonged EEG: Ambulatory and ICU
   Amy Z. Crepeau, M.D.
10:15 Refreshment Break
10:30 Long Term Video EEG Monitoring
   Greg D. Cascino, M.D.
11:15 Intracranial Monitoring
   Amy Z. Crepeau, M.D.
12:00 - 12:30 p.m. Lunch
12:30 - 2:00 Lunch and Learn Breakout Sessions (45 minutes each)
   Adult Cases - Joseph F. Drazkowski, M.D.
   Pediatric Cases - Katherine C. Nickels, M.D.
   2:00 Refreshment Break
   2:15 Devices
      Gregory A. Worrell, M.D., Ph.D.
3:00 Beyond Status Epilepticus
   Amy Z. Crepeau, M.D.
3:45 EEG Jeopardy
   Angela M. Parsons, D.O.
4:30 Post Test
4:45 Adjourn

Tuesday, January 28, 2020

7:00 a.m. Continental Breakfast
7:45 Welcome (EMG Pre-Test)
   Julie A. Khoury, M.D.
8:00 Neurophysiology of Sleep
   Michael H. Silber, M.B., Ch.B.
8:45 Sleep Cases
   Mithri Junna, M.D.
9:30 Movement Disorder Neurophysiology and Cases
   John N. Caviness, M.D.
10:15 Refreshment Break
10:30 Visual and Brainstem Evoked Potentials
   Jonathan L. Carter, M.D.
11:00 Somatosensory Evoked Potentials
   Ernest M. Hoffman, D.O., Ph.D.
11:30 IOM Spine and Cranial
   Iryna M. Muzyka, M.D.
12:15 - 1:00 p.m. Lunch
   (EEG 1:00 p.m. Adjourns)
1:00 Nerve Conduction Study Basics
   Brent P. Goodman, M.D.
1:45 Uncommon Motor Nerve Conduction Studies
   Elie Naddaf, M.D.
2:30 Refreshment Break
2:45 Uncommon Sensory Studies Technique and Utility
   Mark A. Ross, M.D.
3:30 Repetitive Nerve Stimulation
   Brian A. Crum, M.D.
4:30 Adjourn

Wednesday, January 29, 2020

7:00 a.m. Continental Breakfast
8:00 Pitfalls of Nerve Conduction Studies
   Devon I. Rubin, M.D.
8:45 Evaluation of Cranial Nerves
   Benn E. Smith, M.D.
9:30 Refreshment Break
9:45 Technique of Needle Examination
   Devon I. Rubin, M.D.
10:30 Neuromuscular Ultrasound in the EMG Lab
   James C. Watson, M.D.

Continued
Thursday, January 30, 2020

7:00 a.m. Continental Breakfast

8:00 EMG of Uncommon Muscles
Eric J. Sorenson, M.D.

9:00 EMG Waveform Analysis: Introduction
Devon I. Rubin, M.D.

10:30 Refreshment Break

10:45 EMG Report Writing and Billing
Benn E. Smith, M.D.

11:15 Carpal Tunnel Syndrome
James C. Watson, M.D.

12:00 p.m. Lunch

12:45 EMG Workshops
Common Upper Extremity
Common Lower Extremity
Uncommon Upper Extremity
Miscellanea and Needle Technique
Ruple S. Laughlin, M.D.
Devon I. Rubin, M.D.
Benn E. Smith, M.D.
Eric J. Sorenson, M.D.

4:15 Break for Dinner

5:00 An Evening of EMG Waveforms
Ruple S. Laughlin, M.D.
Devon I. Rubin, M.D.

9:00 Adjourn

Friday, January 31, 2020

7:00 a.m. Continental Breakfast

8:00 Lower Limb Mononeuropathies
Julie A. Khoury, M.D.

8:45 Ulnar Neuropathy
Ruple S. Laughlin, M.D.

9:30 Brachial Plexopathy
Sarah E. Berini, M.D.

10:15 Refreshment Break

10:30 Evaluation of Radiculopathies
Eric J. Sorenson, M.D.

11:15 Evaluation of Peripheral Neuropathy
Michelle L. Mauermann, M.D.

12:00 p.m. Lunch

12:30 Lunch and Learn: Evaluation of Uncommon and Atypical Peripheral Neuropathies
Michelle L. Mauermann, M.D.

1:15 Neurophysiology of Motor Neuron Disease
Mark A. Ross, M.D.

2:00 Evaluation of Neuromuscular Junction Disorders
Brent P. Goodman, M.D.

2:45 Refreshment Break

3:00 EMG Approach to Muscle Disease
Elliot L. Dimberg, M.D.

3:45 Workshops (choose 2)
Ultrasound; Repetitive Nerve Stimulation; Single Fiber EMG; Cranial Nerve Conduction Studies
Sarah E. Berini, M.D.
Brent P. Goodman, M.D.
Benn E. Smith, M.D.
Eric J. Sorenson, M.D.

5:45 Post-test
Julie A. Khoury, M.D.

6:00 Adjourn

Mayo Clinic College of Medicine and Science designates this live activity for a maximum of 50.0 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AMA PRA Category 1 Credits™ Breakdown:
Option 1 - EMG, EEG and Neurophysiology in Clinical Practice (January 26 – 31, 2020): 50.0 credits
Option 2 - EEG and Neurophysiology in Clinical Practice (January 26 – 28, 2020): 18.75 credits
Option 3 - EMG and Neurophysiology in Clinical Practice (January 28 – 31, 2020): 35.25 credits

ABPN The American Board of Psychiatry and Neurology has reviewed the Electromyography (EMG), Electroencephalography (EEG), and Neurophysiology in Clinical Practice 2020 course and has approved this program as part of a comprehensive Self-Assessment Part II program, which is mandated by the ABMS as a necessary component of Maintenance of Certification. The activity awards up to 50 Category 1 CME and 8 Self-Assessment credits. The approval period is for October 6, 2017 – October 6, 2020. Diplomates must achieve a score of 80 percent within two attempts in order to receive credit.

AOA The American Osteopathic Association designates this program for a maximum of 50.0 AOA Category 2-A credits.

Other Healthcare Professionals
A certificate of attendance will be provided to other healthcare professionals for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.
Electroencephalography (EEG), Electromyography (EMG) and Neurophysiology in CLINICAL PRACTICE

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In support of improving patient care, Mayo Clinic College of Medicine and Science is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.