COURSE OBJECTIVES

This course is designed as a review of techniques and topics pertaining to Clinical Neurophysiology which includes: basic physiology; pathophysiology; EEG; evoked potentials; EMG; movement disorders; and intraoperative monitoring. There is a focus on clinical correlation of various neurophysiologic tests used for the evaluation of patients with epilepsy, sleep disorders, movement disorders, peripheral nerve, and neuromuscular disorders.

The format for this program includes lectures, practical demonstrations, quizzes and discussion, videos, and workshops for optimal learning. Participants will have the opportunity to observe and perform hands-on EMG techniques on normal subjects during the workshops. Presentations will be given by physicians of Mayo Medical School from the Department of Neurology in Jacksonville, Rochester, and Scottsdale.

COURSE LEARNING OBJECTIVES

Upon completion of this course, participants should be able to:

• Interpret frequently used clinical neurophysiology studies
• Determine the limits of the clinical neurophysiology tests in the evaluation of patients with disorders of the nervous system
• Integrate the various clinical neurophysiology studies in the evaluation of patients with disorders of the central nervous system
• Identify various types of EEG patterns and their clinical correlates
• Recognize indications for various types of monitoring procedures for patients with seizures

DISCLAIMER

Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures, which may be discussed or taught in this course.

CREDIT

Mayo Foundation is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Mayo Foundation designates this educational activity for a maximum of 60 category 1 credits towards the AMA Physician’s Recognition Award. Each physician should claim only those credits that he/she actually spent in the educational activity.

EDUCATIONAL GRANTS

This course is supported in part by educational grants in accordance with ACCME Standards.

MEETING LOCATION

The Scottsdale Marriott at McDowell Mountains is a Mediterranean inspired hotel with the spectacular setting of a resort, while offering amenities of a luxury all-suite hotel. Rooms at the hotel are spacious with separate living room and bedroom. The hotel is surrounded by the sweeping fairways of the Tournament Players Club (TPC) Desert Golf Course, which is the site of the annual Phoenix Open and beautiful views of the McDowell Mountains. Recreation available at the hotel includes the TPC, an outdoor swimming pool, a state-of-the-art health and fitness center, whirlpool and saunas. Onsite restaurants include the Zambra Grill and Agava Bar. For more information about the hotel, visit: www.marriottscottsdale.com

RECREATION/LEISURE ACTIVITIES

With a combination of excellent, dependable weather and an array of activities to choose from, Scottsdale is the ideal location to meet all your recreation needs. Come play on the world-class golf courses surrounded by the Sonoran Desert, take to the sky
in a hot air balloon ride, or stay close to the ground while hiking in the McDowell Mountains. For those that like water but want to venture from the pool, float down the cool waters in a raft or kayak on the Salt River. For those indoor enthusiasts, Scottsdale is home to more than 125 art galleries, many located in nearby art and shopping districts. With more than 225 shops and boutiques in the area, you can literally shop till you drop! For more information on restaurants, attractions, and a calendar of events in Scottsdale, visit: www.scottsdalecvb.com

REGISTRATION

To register, please complete the attached registration form and return with payment. If you are using a credit card, you may fax your registration form to 1-480-301-8323. The registration fees include continental breakfasts, lunches, two dinners, refreshment breaks, hands-on workshops, two receptions, and a comprehensive course syllabus. (There are no discounts for this course.)

EEG+EMG $920   EEG only $720   EMG only $790

A letter of confirmation will be sent upon receipt of payment and completed registration form. If you do not receive a confirmation letter, please call 1-480-301-4580, or send an e-mail to mcs.cme@mayo.edu. Please have this letter accessible when checking in at the course registration desk.

If your registration must be cancelled, please note that a refund of your tuition, less a 20% administrative fee, will be processed when we receive written notification prior to January 1, 2004. Regrettably, we are unable to process any refunds after the January 1, 2004 deadline.

Although it is not Mayo Clinic’s policy to limit the number of registrants for a course, resort conference room facilities may necessitate closure of enrollment. Early registration is strongly recommended. Walk-in registrations cannot be guaranteed.

In case of an emergency, you may be reached at the conference by calling 1-480-502-3836; please ask for the Mayo Clinic’s Update in EEG, EMG, and Clinical Neurophysiology course registration desk.

Mayo School of Continuing Medical Education uses multiple mailing lists and cannot always eliminate duplications. Please post or share any extra brochures with colleagues.

 Lodging Accommodations

Hotel rooms in the Phoenix/Metro area are limited. You are urged to make reservations early. A limited block of luxurious rooms at a special rate of $199.00 single/double/triple or quad occupancy per night has been reserved at the Scottsdale Marriott at McDowell Mountains. Group rates will be honored three (3) days prior and three (3) days following the course dates, based upon space availability. To make your reservation call 1-480-502-3836. Be sure to state that you are attending the Mayo Clinic’s Update in EEG, EMG, and Clinical Neurophysiology course.

In order to receive the special rate, reservations must be made before the room block is filled or the expiration date of December 30, 2003. Reservations will be accepted following this date based upon resort room availability, at the contracted meeting rate. Hotel Website: www.marriottscottdale.com

Travel Arrangements

Please be sure to confirm your course registration prior to making your travel arrangements.

When making reservations, please state that you are attending Mayo Clinic’s Update in EEG, EMG, and Clinical Neurophysiology course.

Air: America West Airlines is the official airline for this course. Reduced airline rates are available by calling America West Airlines at 1-800-548-7575. CAMS File Code: 2011 Valid date(s) of travel are: January 27-February 12, 2004.

Ground Transportation: Hertz is offering a reduced daily rate for participants attending the course. Call 1-800-654-2240 and refer to CV Number 022Q1480 when making reservations. Supershuttle vans offer airport transportation to and from the hotel. To make reservations call 1-602-244-9000.
Sunday February 1, 2004

7:30 am  Registration & Continental Breakfast

Moderator: Joseph I. Sirven, MD

Routine Scalp EEG

8:00  EEG in Normal Infants and Children
Barbara F. Westmoreland, MD

8:50  EEG in Normal Adult and Benign Variants
Joseph I. Sirven, MD

9:40  Refreshment Break and Industry Exhibits

10:00  Using EEG in Managing Partial and Generalized Epilepsy
David R. Chabolla, MD

11:00  Morning Quiz and Discussion
David R. Chabolla, MD; Joseph I. Sirven, MD; & Barbara F. Westmoreland, MD

Noon  Complimentary Lunch

Video EEG

1:00 pm  Video EEG in Evaluating Generalized and Partial Epilepsy
Gregory D. Cascino, MD

2:00  Video EEG in Evaluating Nonepileptic Spells
Joseph F. Drazkowski, MD

3:00  Refreshment Break and Industry Exhibits

3:30  Video EEG in Evaluating Children with Seizures and Spells
Jeffrey R. Buchhalter, MD, PhD

4:30  Adjourn

4:40-5:30  Welcome Reception

Monday February 2, 2004

7:30 am  Continental Breakfast & Industry Exhibits

Moderator: Joseph F. Drazkowski, MD

Clinical Correlation and Sleep

8:00  Evaluation of Non-Respiratory Sleep Disorders
Michael H. Silber, MD

9:30  Using the EEG for Deciding When to Start and Stop Antiepileptic Drugs
Gregory D. Cascino, MD

10:15  Refreshment Break and Industry Exhibits
10:30  EEG in Encephalopathies, Infectious Diseases & Coma
       Elson L. So, MD

11:15  EEG in Status Epilepticus
       Joseph I. Sirven, MD

Noon  Complimentary Lunch

Workshops

1:00 pm  Video EEG Quiz: Name That Spell
          Jeffrey R. Buchhalter, MD; Joseph F. Drazkowski, MD &
          Elson L. So, MD

2:00  Epilepsy Surgery Evaluation
      Gregory D. Cascino, MD; David R. Chabolla, MD &
      Joseph I. Sirven, MD

3:30  Refreshment Break and Industry Exhibits

3:45  Quiz Review and Discussion
      Joseph I. Sirven, MD & Barbara F. Westmoreland, MD

4:45  Adjourn

Tuesday  February 3, 2004

7:30 am  Continental Breakfast & Industry Exhibits

Moderator: John N. Caviness, MD

Movement, Autonomic & Stroke

8:00  Electrical Stimulation and Seizure Control
      Gregory A. Worrell, MD, PhD

9:00  Evaluation and Treatment of Restless Leg Syndrome
      Virgilio G.H. Evidente, MD

10:00  Refreshment Break & Industry Exhibits

10:15  Evaluation & Neurophysiology of Myoclonus
       John N. Caviness, MD

11:00  Surgical Treatment of Movement Disorders
       Virgilio G.H. Evidente, MD

11:45  Complimentary Lunch

1:00 pm  Transcranial Doppler
          Bart M. Demaerschalk, MD

2:00  Neurological Indications for Botulinum Toxin Injections:
      Video Demonstrations
      Charles H. Adler, MD, PhD

3:45  Autonomic Studies
      Phillip A. Low, MD

4:15  Adjourn
Wednesday February 4, 2004

7:00 am  Registration and Continental Breakfast

Moderator:  Benn E. Smith, MD

CNP Fundamentals

7:30  Electricity, Filters, and Circuit Analysis  
Terrence D. Lagerlund, MD, PhD

8:45  Electrical Safety  
Terrence D. Lagerlund, MD, PhD

9:30  Refreshment Break & Industry Exhibits

9:45  Physiology of the Cerebral Cortex  
Gregory D. Cascino, MD

10:45  Physiology of Nerve and Muscle  
Kevin B. Boylan, MD

11:30  Complimentary Luncheon

12:30 pm  Visual Evoked Potentials  
Jonathan L. Carter, MD

1:00  Brainstem Auditory Evoked Potentials  
Jonathan L. Carter, MD

1:30  Somatosensory Evoked Potentials  
J. Clarke Stevens, MD

2:30  Refreshment Break & Industry Exhibits

2:45  Intraoperative Monitoring: Cortical/Epilepsy  
Joseph F. Drazkowski, MD

3:45  Intraoperative Monitoring: Cranial/Spinal/Peripheral  
C. Michel Harper, MD

4:45  Adjourn

4:45-5:45  Welcome Reception

Thursday February 5, 2004

7:00 am  Continental Breakfast & Industry Exhibits

Moderator:  Benn E. Smith, MD

Clinical Correlation’s

7:30  Quiz

8:00  Electrophysiologic Correlates of Nerve Pathology  
P. James B. Dyck, MD
8:45  Electrophysiologic Correlates of Muscle Pathology  
Brian A. Crum, MD  

9:30  Refreshment Break & Industry Exhibits  

9:45  Electrophysiologic Correlates of Neuromuscular Junction Pathology  
C. Michel Harper, MD  

10:30  Motor Unit Number Estimates  
Jasper R. Daube, MD  

11:30  Complimentary Luncheon (registrants only)  

Nerve Conduction Studies  

12:30 pm  Pitfalls of Nerve Conduction Studies  
Eric J. Sorenson, MD  

1:00  Special Sensory NCS  
Mark A. Ross, MD  

1:30  Uncommon Motor NCS Including Proximal and Late Responses  
Guillermo A. Suarez, MD  

2:15  NCS in the Pediatric Population  
Nancy L. Kuntz, MD  

3:00  Refreshment Break & Industry Exhibits  

3:15  Repetitive Simulation: Physiology and Techniques  
C. Michel Harper, MD  

4:00  Electrophysiologic Evaluation of Cranial Nerve Disorders  
Raymond G. Auger, MD  

5:00  Complimentary Dinner  

6:00  Case Presentations  
Drs. E. Peter Bosch, Matthew J. Pingree, Mark A. Ross, & Smriti V. Nagale  

8:00  Adjourn  

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Friday  February 6, 2004  

7:15 am  Continental Breakfast & Industry Exhibits  

Moderator: Benn E. Smith, MD  

Electromyography  

8:00  EMG Signal Analysis: Introduction with Video Examples  
Jasper R. Daube, MD & Devon I. Rubin, MD  

9:00  Refreshment Break & Industry Exhibits  

9:15  Quiz  

9:45  Needle Examination Technique and Semi-quantitation  
Devon I. Rubin, MD
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>10:15</td>
<td>Quantitative EMG</td>
<td>Devon I. Rubin, MD</td>
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<tr>
<td>11:15</td>
<td>Needle EMG of Unusual Muscles</td>
<td>Eric J. Sorenson, MD</td>
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<td>12:15 pm</td>
<td>Complimentary Luncheon</td>
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<tr>
<td>1:15</td>
<td>Single Fiber EMG</td>
<td>Brian A. Crum, MD</td>
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<td>2:00</td>
<td>Crafting the EMG Report</td>
<td>Benn E. Smith, MD</td>
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**Demonstrations I**

<table>
<thead>
<tr>
<th>Time</th>
<th>Demonstration</th>
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<tr>
<td>3:00</td>
<td>DEMONSTRATIONS: NERVE CONDUCTION STUDIES</td>
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<tr>
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<td>• Common and Uncommon Upper Limb Motor and Sensory NCS</td>
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<td>• Common and Uncommon Lower Limb Motor and Sensory NCS</td>
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<td>• Cranial Nerve Conduction Studies and Repetitive Stimulation Techniques</td>
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<td>4:00</td>
<td>DEMONSTRATIONS: NERVE CONDUCTION STUDIES</td>
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<td>• Common and Uncommon Upper Limb Motor and Sensory NCS</td>
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<td>• Common and Uncommon Lower Limb Motor and Sensory NCS</td>
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<td>• Motor Unit Number Estimates</td>
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<td>5:00</td>
<td>DEMONSTRATIONS: NERVE CONDUCTION STUDIES</td>
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<tr>
<td></td>
<td>• Common and Uncommon Upper Limb Motor and Sensory NCS</td>
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<td>• Somatosensory Evoked Potentials</td>
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<td>6:00</td>
<td>Complimentary Dinner</td>
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<td>7:00</td>
<td>EMG Signal Analysis: Demonstration</td>
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<td></td>
<td>Jasper R. Daube, MD</td>
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<td>11:00</td>
<td>Adjourn</td>
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**Saturday February 7, 2004**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 am</td>
<td>Continental Breakfast &amp; Industry Exhibits</td>
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**Moderator:** Benn E. Smith, MD

**Approach to Selected Clinical Disorders**

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:15</td>
<td>Quiz</td>
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</table>
7:45  Carpal Tunnel Syndrome and Other Median Neuropathies
      J. Clarke Stevens, MD

8:30  Brachial Plexopathy
      Matthew J. Pingree, MD

9:00  Peripheral Neuropathy
      Mark A. Ross, MD

9:30  Refreshment Break & Industry Exhibits

9:45  Ulnar Neuropathies
      Jayson H. Takata, MD

10:15 Lumbosacral Plexopathy
       P. James B. Dyck, MD

10:45 Motor Neuron Disease
       Eric J. Sorenson, MD

11:30 Neuromuscular Junction Disease
       C. Michel Harper, MD

12:30 pm Complimentary Luncheon

1:30  EMG Approaches to Pediatric Disorders
      Nancy L. Kuntz, MD

2:15  Localization with EMG
      Benn E. Smith, MD

3:00  Refreshment Break & Industry Exhibits

Demonstrations II

3:30  GROUP DEMONSTRATIONS:
      NEEDLE ELECTRODE EXAMINATIONS:
      • Technique of the Needle Examination
      • Lower Limb Common and Uncommon Muscles
      • Quantitative Electromyography

4:30  GROUP DEMONSTRATIONS:
      NEEDLE ELECTRODE EXAMINATIONS:
      • Upper Limb Common and Uncommon Muscles
      • Lower Limb Common and Uncommon Muscles
      • Single Fiber Electromyography

5:30  GROUP DEMONSTRATIONS:
      NEEDLE ELECTRODE EXAMINATIONS:
      • Upper Limb Common and Uncommon Muscles
      • Lower Limb Common and Uncommon Muscle
      • Technique of the Needle Examination

7:00  Course Adjourn
MAYO CLINIC FACULTY

Scottsdale, AZ

Charles H. Adler, MD, PhD
E. Peter Bosch, MD
Jonathan L. Carter, MD
John N. Caviness, MD
Bart M. D. Demaerschalk, MD
Joseph F. Drazkowski, MD
Virgilio G.H. Evidente, MD
Smriti V. Nagale, DO
Matthew J. Pingree, MD
Mark A. Ross, MD
Joseph I. Sirven, MD*
Benn E. Smith, MD*

Rochester, MN

Raymond G. Auger, MD
Jeffrey R. Buchhalter, MD, PhD
Gregory D. Cascino, MD
Eric J. Sorenson, MD
Jasper R. Daube, MD
J. Clarke Stevens, MD
P. James B. Dyck, MD
Guillermo A. Suarez, MD
C. Michel Harper, MD
Barbara F. Westmoreland, MD
Nancy L. Kuntz, MD
Gregory A. Worrell, MD, PhD
Terrence D. Lagerlund, MD, PhD

Jacksonville, FL

Kevin B. Boylan, MD
David R. Chabolla, MD
Devon I. Rubin, MD

Visiting Faculty

Jayson H. Takata, MD
Physiatry and Rehabilitation Services
Honolulu, HI

*Course Co-Directors

FACULTY DISCLOSURE

As a provider accredited by ACCME, Mayo Foundation must ensure balance, independence, objectivity and scientific rigor in its educational activities. All faculty participating in a Mayo Foundation activity are required to disclose commitments to and/or relationships with pharmaceutical companies, biomedical device manufacturers or distributors, or others whose products or services may be considered to be related to the subject matter of the educational activity. Faculty will also disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of these commitments and/or relationships will be published in course materials so those participants in the activity may formulate their own judgments regarding the presentation.

Two easy ways to register:
Fax registration form to: 1-480-301-8323
or
Mail registration form and payment to:
Mayo School of Continuing Medical Education
Mayo Clinic
13400 East Shea Boulevard
Scottsdale, Arizona 85259

Internet:
www.mayo.edu/cme/courses.htm

Check our web site regularly for new courses. Courses are added as they become available.
Registration Form

Update in EEG, EMG, and Clinical Neurophysiology
February 1-7, 2004

Please print or type all information. You may duplicate form for multiple registrations.

To expedite registration, fax this form with your credit card noted: 1-480-301-8323; or mail to Mayo School of Continuing Medical Education, Mayo Clinic, 13400 East Shea Boulevard, Scottsdale, AZ 85259. For questions, please call 1-480-301-4580 or email: mcs.cme@mayo.edu.

Your type of practice:

☐ Solo ☐ Group ☐ University ☐ Resident/Fellow
☐ Retired ☐ Other: __________________________

Years in practice:

☐ 0-4 ☐ 5-10 ☐ 11-15 ☐ 16-25 ☐ > 25

☐ Check box if you have any special needs or dietary requirements.
   If so, please indicate your needs here:
   ____________________________________________________________

Name/Degree

Medical Specialty E-mail

Address

City State Zip

(     ) (    ) Daytime Telephone Fax

Course Registration Fee:

☐ Option 1: Sunday-Saturday EEG+ EMG $920
☐ Option 2: Sunday-Wednesday EEG only $720
☐ Option 3: Wednesday-Saturday EMG only $790

Payment: U.S. Funds Only (Please indicate form of payment below).

☐ Check enclosed (Please make checks payable to Mayo Clinic)
☐ Visa ☐ MasterCard ☐ Discover

Card Number ________________________________ Expiration date (mo/yr) ______

Signature Date
Update in EEG, EMG, and Clinical Neurophysiology

Scottsdale Marriott at McDowell Mountains
February 1-7, 2004