Philips Neuroscience MRI Symposium

Innovation for you. Innovation with you

At Philips, we have a long history of converting research into meaningful innovation, improving the lives of clinicians and patients. We look beyond technology to the experiences of the people at the heart of care – patients, clinicians and care givers – to unlock insights across the patient journey. We are dedicated to helping you address your challenges by partnering to create meaningful innovations.
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Handouts. Pre-registered attendees were sent a link to the Annual Meeting handouts prior to the
meeting. The link was sent from asn@llmsi.com.

CME Credits. The CME form will be sent with the Annual Meeting Evaluation after the meeting.
The email will come from asn@llmsi.com. The CME form can be downloaded from the last page of the
evaluation. Please save your CME form for your records. ASN does not track attendee CME hours and
replacement forms will incur a replacement fee.

General and CME Information

ASN Mission Statement
The American Society of Neuroimaging (ASN) is an international, professional organization of clinicians, technologists and research scientists who are dedicated to education, advocacy and research to promote neuroimaging as crucial to the treatment and investigation of disorders of the nervous system. The ASN supports the right of qualified physicians to utilize neuroimaging modalities for the evaluation and management of their patients, and the right of patients with neurological disorders to have access to appropriate neuroimaging modalities and to physicians qualified in their use and interpretation. The ASN supports clinical and basic science research by neuroimagers through educational programs, an annual meeting and a scientific journal.

The goal of the ASN is to promote the highest standards of neuroimaging in clinical practice, thereby improving the quality of medical care for patients with diseases of the nervous system. This goal is accomplished through:

- Presenting scientific and educational programs at an annual meeting and through the promotion of fellowships, preceptorships, tutorials and seminars related to neuroimaging;
- Publishing a scientific journal;
- Formulating and promoting high standards of practice and setting training guidelines;
- Evaluation of physician competency through examinations.

The ASN's education activities are detailed in its CME Mission Statement. Emphasis is placed on the correlation between clinical information and neuroimaging data to provide the cost effective and efficient use of imaging modalities for the diagnosis and evaluation of diseases of the nervous system. The ASN will continue to develop training and practice guidelines related to neuroimaging for:

- Physicians in practice who currently use or wish to use neuroimaging;
- Physicians in residency or fellowship training;
- Healthcare entities responsible for defining or allocating professional privileges and credentialing to individual physicians.

American Society Of Neuroimaging CME Mission Statement
The American Society of Neuroimaging (ASN) is an international professional organization of clinicians, technologists and research scientists who are dedicated to the advancement and advocacy of neuroimaging as a crucial to the treatment and investigation of disorders of the nervous system. The purpose of the ASN is to promote the integration of neuroimaging into the care of patients with neurological disorders through education, advocacy, accreditation and research.

The ASN's Annual Meeting educational activities meet the educational needs of physicians in practice and in training who use imaging techniques to investigate and treat disorders of the nervous system. Neuroimaging techniques that are included are the ASN educational activities include x-ray, angiography and computed tomography, magnetic resonance, ultrasound, positron emission tomography and single photon emission computed tomography and near infrared spectroscopy. Emphasis is placed on the correlation of the clinical data with information derived from the various methods used to image the nervous system and related structures (integrated neuroimaging) and on the updating of algorithms leading to a cost effective and efficient use of imaging modalities for the different disorders of the nervous system.

The Society further supports and promotes Fellowships, Preceptorships, Tutorials, and Seminars, related to neuroimaging held throughout the country. These courses address advances in the role of MRI, CT and Neurosonology in Neurology and are designed to help practitioners and trainees improve their interpretation skills. The ASN supports certification and self-assessment examinations in neuroimaging modalities to recognize the ability of neuroimagers to interpret studies.

Target Audience
The material presented at the 39th Annual Meeting is appropriate for neurologists, radiologists, and other physicians and health care professionals involved in the diagnosis and treatment of patients with neurologic disease.

Accreditation
The American Society of Neuroimaging is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Desirable Physician Attributes
The material presented at the 39th Annual Meeting is designed to procure medical knowledge and cognitive expertise.

Credit Designation
The American Society of Neuroimaging designates this live activity for a maximum of 28.75 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CME Certificates And Evaluations
CME certificates will be issued after the conclusion of the 2016 Annual Meeting. In order to receive your CME certificate you will need to submit an evaluation form for each course attended. In an ongoing effort to move to paperless format, evaluations will only be available online. All meeting attendees will receive an email after the meeting with a link to the evaluation. Please note: You will only receive CME credits for the courses for which you have registered.
ASN Board and Committee Leaders

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Charles Tegeler, MD
Lawrence Wechsler, MD

Editor-in-Chief, Journal of Neuroimaging
Rohit Bakshi, MD

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Certification Committee
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Neurosonology Examination Committee
Andrei Alexandrov, MD, RVT

Membership Committee
Joshua Klein, MD

Nominating Committee
Laszlo Mechtler, MD

Journal of Neuroimaging Oversight Committee
Lawrence Wechsler, MD

Practice Guidelines Committee
Lawrence Wechsler, MD

Practice Issues Committee
Elizabeth Rowe, PhD, MBA

American Society Of Neuroimaging Education Foundation

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Vice President
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Treasurer
Lawrence Wechsler, MD

Many thanks to the 2016 Program Committee for their work developing this year’s program

David Liebeskind, MD, FAAN, FAHA, FANA (Chair)
Andrei Alexandrov, MD, RVT
John Bertelson, MD
Emma Fields, APRN-CNP
Joseph Fritz, PhD
Ryan Hakimi, DO, MS
Geoffrey Hartwig, MD
Michael Hutchinson, MD, PhD
Dara Jamieson, MD
Joshua Klein, MD, PhD
Paul Maertens, MD
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Laszlo Mechtler, MD, FAAN
Erasmio Passaro, MD
Adnan Qureshi, MD
Alexander Razumovsky, PhD, FAHA
Gabriella Szatmáry, MD, PhD
Charles Tegeler, MD
Lawrence Wechsler, MD

Handouts. Pre-registered attendees were sent a link to the Annual Meeting handouts prior to the meeting. The link was sent from asn@llmsi.com.
## Program At a Glance

### THURSDAY, JANUARY 14, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 am – 1:30 pm</td>
<td>ASN Committee and Board Meetings</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>12:00 pm – 7:00 pm</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>1:00 pm – 6:00 pm</td>
<td>Neuroimaging Bootcamp for Advanced Practice Providers and Junior Physicians</td>
<td>North Ballroom</td>
</tr>
<tr>
<td>6:00 pm – 7:00 pm</td>
<td>Reception / Poster Stand-By Session / Exhibits</td>
<td>South Ballroom</td>
</tr>
<tr>
<td>7:00 pm – 7:30 pm</td>
<td>Welcome and Awards Ceremony</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>7:30 pm – 8:30 pm</td>
<td>Keynote Address: The Full-Speed MRI Project</td>
<td>Center Ballroom</td>
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</table>

### FRIDAY, JANUARY 15, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am – 5:00 pm</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>7:00 am – 8:30 am</td>
<td>Concurrent Breakfast Seminar: A Practical Approach to Understanding MRI and CT Physics</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td></td>
<td>Concurrent Breakfast Seminar: Applied Principles of Ultrasound Physics and Fluid Dynamics</td>
<td>North Ballroom</td>
</tr>
<tr>
<td>8:30 am – 9:00 am</td>
<td>Exhibits / Posters</td>
<td>South Ballroom</td>
</tr>
<tr>
<td>9:00 am – 3:00 pm</td>
<td>Concurrent Session: Current Topics in MR/CT Part I</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td></td>
<td>Concurrent Session: Current Topics in Neurosonology Part I and Part II</td>
<td>North Ballroom</td>
</tr>
<tr>
<td>10:30 am – 10:45 am</td>
<td>Exhibits / Posters</td>
<td>South Ballroom</td>
</tr>
<tr>
<td>12:15 pm – 12:45 pm</td>
<td>Philips Healthcare Lunch &amp; Presentation</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>1:15 pm – 3:00 pm</td>
<td>Concurrent Sessions Continue</td>
<td>Center/North Ballroom</td>
</tr>
<tr>
<td>3:00 pm – 3:15 pm</td>
<td>Refreshments Available</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>3:00 pm – 4:00 pm</td>
<td>Advocacy and Business of Neuroimaging</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>4:00 pm – 6:00 pm</td>
<td>Symposium: Hyper-acute Imaging of Stroke: New Frontiers &amp; Novel Approaches</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>6:00 pm – 7:00 pm</td>
<td>Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>7:00 pm – 10:00 pm</td>
<td>Concurrent Session: MRI Workshop (registration required)</td>
<td>Crystal Room</td>
</tr>
<tr>
<td></td>
<td>Concurrent Session: Neurosonology Workshop (registration required)</td>
<td>South Ballroom</td>
</tr>
</tbody>
</table>

### SATURDAY, JANUARY 16, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am – 4:00 pm</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>7:00 am – 8:30 am</td>
<td>Concurrent Breakfast Seminar: Diagnostic and Interventional Fetal Neurology</td>
<td>Center Ballroom</td>
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<tr>
<td></td>
<td>Concurrent Breakfast Seminar: TCD in the ICU – TCD for Early Detection of Vasospasm and ICP Tailored Management</td>
<td>North Ballroom</td>
</tr>
<tr>
<td>8:30 am – 9:00 am</td>
<td>Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>9:00 am – 3:00 pm</td>
<td>Concurrent Session: Current Topics in MR/CT Part II</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td></td>
<td>Concurrent Session: Current Topics in Neurosonology Part II</td>
<td>North Ballroom</td>
</tr>
<tr>
<td>10:30 am – 10:45 am</td>
<td>Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td>Presidential Address Luncheon</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>1:00 pm – 3:00 pm</td>
<td>Concurrent Sessions Continue</td>
<td>Center/North Ballroom</td>
</tr>
<tr>
<td>3:00 pm – 3:15 pm</td>
<td>Refreshments Available</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>3:00 pm – 4:30 pm</td>
<td>Self Assessment Exam</td>
<td>Crystal Room</td>
</tr>
<tr>
<td>4:30 pm – 5:30 pm</td>
<td>Symposium: Current Clinical Nuclear Neurology with PET, SPECT and Scintigraphy</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>5:30 pm – 6:00 pm</td>
<td>Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>6:00 pm – 8:00 pm</td>
<td>Symposium: Imaging in Teleneurology</td>
<td>Center Ballroom</td>
</tr>
<tr>
<td>8:30 pm</td>
<td>Networking Social</td>
<td>Offsite</td>
</tr>
</tbody>
</table>
## ASN 2016 Annual Meeting Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrei Alexandrov, MD, RVT</td>
<td>The University of Tennessee Health Science Center</td>
<td>Memphis, Tennessee</td>
</tr>
<tr>
<td>John Bertelson, MD</td>
<td>University of Texas – Austin Dell Medical School</td>
<td>Austin, Texas</td>
</tr>
<tr>
<td>Patrick Capone, MD, PhD</td>
<td>Winchester Neurological Consultants</td>
<td>Winchester, Virginia</td>
</tr>
<tr>
<td>Esther Collado, RN, RVT</td>
<td>The Methodist Hospital</td>
<td>Houston, Texas</td>
</tr>
<tr>
<td>Ramy El Khoury, MD</td>
<td>Tulane University School of Medicine</td>
<td>New Orleans, Louisiana</td>
</tr>
<tr>
<td>Leonard DaSilva, MD</td>
<td>Tallahassee Neurological Clinic</td>
<td>Tallahassee, Florida</td>
</tr>
<tr>
<td>Neeraj Dubey, MD, FAAN</td>
<td>Neurology &amp; Stroke Associates, PC</td>
<td>Lötitz, Pennsylvania</td>
</tr>
<tr>
<td>Emma Fields APRN-CNP</td>
<td>University of Oklahoma Health Sciences Center</td>
<td>Oklahoma City, Oklahoma</td>
</tr>
<tr>
<td>Joseph Fritz, PhD</td>
<td>Dent Neurologic Institute</td>
<td>Amherst, New York</td>
</tr>
<tr>
<td>Zsolt Garami, MD, RPVI</td>
<td>The Methodist Hospital</td>
<td>Houston, Texas</td>
</tr>
<tr>
<td>Eduardo Gonzalez-Toledo, MD</td>
<td>Louisiana State University Health Sciences Center</td>
<td>Shreveport, Louisiana</td>
</tr>
<tr>
<td>Ryan Hakimi, DO, MS</td>
<td>University of Oklahoma Health Sciences Center</td>
<td>Oklahoma City, Oklahoma</td>
</tr>
<tr>
<td>Maxim Hammer, MD</td>
<td>University of Pittsburgh Medical Center</td>
<td>Pittsburgh, Pennsylvania</td>
</tr>
<tr>
<td>Marge Hutchisson, RVT, RDCS</td>
<td>Intersocietal Accreditation Commission</td>
<td>Ellicott City, Maryland</td>
</tr>
<tr>
<td>Dara Jamieson, MD</td>
<td>Weill Cornell Medical Center</td>
<td>New York, New York</td>
</tr>
<tr>
<td>Gregory Kapinos, MD, MS</td>
<td>North Shore-LIJ Health System</td>
<td>New York, New York</td>
</tr>
<tr>
<td>Joshua Klein, MD, PhD</td>
<td>Brigham and Women's Hospital</td>
<td>Boston, Massachusetts</td>
</tr>
<tr>
<td>Christina Ledbetter, PhD</td>
<td>Louisiana State University Health Sciences Center</td>
<td>Shreveport, Louisiana</td>
</tr>
<tr>
<td>Jennifer McVige, MD, MA</td>
<td>Dent Neurologic Institute</td>
<td>Amherst, New York</td>
</tr>
<tr>
<td>Laszlo Mechtler, MD, FAAN</td>
<td>Dent Neurologic Institute</td>
<td>Amherst, New York</td>
</tr>
<tr>
<td>Bijal Mehta, MD, MPH</td>
<td>UCLA David Geffen School of Medicine</td>
<td>Los Angeles, California</td>
</tr>
<tr>
<td>Robert Miletich, MD, PhD</td>
<td>The State University of New York at Buffalo</td>
<td>Buffalo, New York</td>
</tr>
<tr>
<td>James Pipe, PhD</td>
<td>Barrow Neurological Institute</td>
<td>Phoenix, Arizona</td>
</tr>
<tr>
<td>Adnan Qureshi, MD</td>
<td>University of Minnesota</td>
<td>Minneapolis, Minnesota</td>
</tr>
<tr>
<td>Alexander Razumovsky, PhD, FAHA</td>
<td>Sentient NeuroCare Services, Inc.</td>
<td>Hunt Valley, Maryland</td>
</tr>
<tr>
<td>Vernon Rowe, MD</td>
<td>MidAmerica Neuroscience Institute</td>
<td>Lenexa, Kansas</td>
</tr>
<tr>
<td>Mark Rubin, MD</td>
<td>NorthShore Neurological Institute</td>
<td>Glenview, Illinois</td>
</tr>
<tr>
<td>Nerses Sanossian, MD</td>
<td>University of Southern California</td>
<td>Los Angeles, California</td>
</tr>
<tr>
<td>Gabriella Szatmáry, MD, PhD</td>
<td>Hattiesburg Clinic</td>
<td>Hattiesburg, Mississippi</td>
</tr>
<tr>
<td>Charles Tegeler, MD</td>
<td>Wake Forest University School of Medicine</td>
<td>Winston-Salem, North Carolina</td>
</tr>
</tbody>
</table>
**2016 ANNUAL MEETING PROGRAM**

**Thursday, January 14**

**Neuroimaging Bootcamp for Advanced Practice Providers and Junior Physicians**

CME: 4.75 hours  
1:00 - 6:00 pm, North Ballroom

**Course Directors**  
Ryan Hakimi, DO, MS and Emma Fields APRN-CNP

**Course Description**

This course will address normal brain anatomy, vascular lesions (strokes, arteriovenous malformation, and cerebral aneurysms), CNS neoplasms, and demyelinating lesions. Case-based learning will be utilized to present correlation of clinical findings and various neuroimaging modalities (MRI/CT/CTA). We will also introduce Transcranial Doppler and carotid ultrasound imaging principles and their clinical applications for both inpatient and outpatient settings.

**Learning Objectives**

- Identify ischemic versus hemorrhagic lesions on head CT and MRI studies
- Be able to appropriately use neuroimaging studies (CT/CTA/MRI/TCD/Carotid Duplex) to evaluate patients with neurological symptoms
- Be able to interpret/link the patients’ clinical neurologic findings in relation to the lesions on the neuro-imaging.

**Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>1:00 - 1:30</td>
<td>Introduction to CT and CTA Imaging</td>
</tr>
<tr>
<td>1:30 - 2:00</td>
<td>Introduction to MRI/MRA Imaging Principles</td>
</tr>
<tr>
<td>2:00 - 2:30</td>
<td>Introduction to TCD and Carotid Duplex Principles</td>
</tr>
<tr>
<td>2:30 - 3:00</td>
<td>Hemorrhagic lesions as seen on Head CT/MRI</td>
</tr>
<tr>
<td>3:00 - 3:30</td>
<td>Ischemic lesions as seen on Head CT/MRI</td>
</tr>
<tr>
<td>3:30 - 3:45</td>
<td>Break</td>
</tr>
</tbody>
</table>
| 3:45 - 5:55   | Putting it all together: Case-Based Learning 25 minutes each.  
Case 1: Acute Ischemic Stroke  
Case 2: Hypertensive Intracranial Hemorrhage  
Case 3: Aneurysmal Subarachnoid Hemorrhage  
Case 4: Glioblastoma Multiforme  
Case 5: Demyelinating Disease |
| 5:50 - 6:00   | Questions                                                               |

**Keynote Address: The Full-Speed MRI Project**

CME: None  
7:30 - 8:30 pm, Center Ballroom

**Keynote Speaker**  
James Pipe, PhD

**Course Description**

The “Full Speed MRI” project pursues the aspiration to deliver the diagnostic content of MRI with the cost and convenience of a chest Xray. The immediate goal is the solution of all engineering challenges to increased scanning efficiency using “Spiral MRI”, which also maintain or increase the clinical robustness seen today. The MR Technology Design Group (MRTDG) at BNI has shown theoretically, and demonstrated with in-vivo data, that lengthening the data acquisition, or “ADC” time, of many Spiral MR scans allows one to reduce scan time while simultaneously increasing the image SNR. This important and distinct advantage of using Spiral MRI has not been utilized by any vendor to date, due to the requirement of additional calibration and reconstruction computation. The MRTDG has been developing the infrastructure to make this realizable in a clinical setting, using current hardware. An optimistic, but achievable goal is to obtain high resolution (3mm thick, 0.6mm in-plane) contiguous images over the whole brain with good SNR (> 20) in roughly 30 seconds per scan, making possible a complete, high quality brain MRI exam in 5 minutes. Spiral MRI also has the advantages of mitigating motion and pulsatile flow artifact, nearly eliminating “Gibbs ringing” artifact, and is implemented in nearly all cases with full Fat/Water separation. Full Speed MRI is a several-year project, but current data are compelling, and the successes and remaining challenges will be shared in this presentation.

![Conventional](image1.png)  
Conventional  
ADC = 5ms  
Scan time = 4.50  
SNR = 38

![Spiral](image2.png)  
Spiral  
ADC = 6ms  
Scan time = 4.26  
SNR = 37

![Spiral](image3.png)  
Spiral  
ADC = 20ms  
Scan time = 2.50  
SNR = 50

Above are example images of TFE (MP-RAGE) images from fully-sampled whole brain data sets with comparable contrast, FOV, and resolution. The Spiral scan on the right is both faster, and has higher SNR, than the conventional and Spiral MR images with shorter “ADC” data acquisition time. Within the scope of linear reconstruction methods, there is no other way to achieve these two traits simultaneously using the same hardware.
**Concurrent Breakfast Seminar: A Practical Approach to Understanding MRI and CT Physics**  
*CME: 1.5 hours*  
7:00 - 8:30 am, Center Ballroom  

**Course Director**  
Joseph Fritz, PhD  

**Course Description**  
The purpose of this course is to provide a foundation for how MRI and CT images are created, and extend on basic principles to describe the manipulations that are used to create the extensive varieties of tissue contrast and visualization.  

**Learning Objectives**  
- Understanding of MRI Fundamentals. Review the underlying physics of imaging generation using magnetic resonance, and summarize parameters used to define standard and advanced brain and spine MRI protocols, including T1, T2, IR/FLAIR/STIR, SE vs FE vs SWI, EPI, DWI, MRA, Perfusion, fMRI, Spectroscopy and DTI. Be able to appropriately use neuroimaging studies (CT/CTA/MRI/TCD/Carotid Duplex) to evaluate patients with neurological symptoms  
- Understanding of CT Fundamentals. Review the underlying physics of current generation CT equipment, including parameters that are used to control tissue contrast, resolution, speed. CT Angiography, CT Perfusion, Metal Artifact Reduction and visualization techniques will also be discussed.  
- Recognize and mitigate artifacts. The cause of artifacts in both MRI and CT will be reviewed and techniques that mitigate them will be presented.  
- Understand safety considerations related to CT radiation dose and MRI magnetic field affects.

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**Concurrent Breakfast Seminar: Applied Principles of Ultrasound Physics and Fluid Dynamics**  
*CME: 1.5 hours*  
7:00 - 8:30 am, North Ballroom  

**Course Director**  
Andrei Alexandrov, MD, RVT  

**Course Description**  
This seminar is being offered to review ultrasound physics and fluid dynamics, demonstrate typical imaging artifacts and waveforms that interpreting physicians and sonographers need to identify and correct and to interact with the audience and answer questions about these typical findings. Course faculty will discuss applied principles of ultrasound physics and fluid dynamics using a set of approximately 50 typical images/waveforms. Discussion format includes brief case/symptom presentation and an ultrasound image. Faculty will ask the audience to interpret the image and engage in discussion of differential diagnosis and common pitfalls that are linked to ultra sound physics and fluid dynamics.  

**Learning Objectives**  
- Review most common ultrasound imaging artifacts and spectral waveforms.  
- Learn key principles of applied ultrasound physics and fluid dynamics that are responsible for these findings.  
- Learn how to differentiate, optimize, and interpret typical ultrasound imaging artifacts and spectral waveforms.

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**Concurrent Session: Current Topics in MR/CT Part I**  
*CME: 4.75*  
9:00 am - 3:00 pm, Center Ballroom  

**Course Directors**  
John Bertelson, MD and Gabriella Szatmary, MD, PhD  

**Course Description**  
This course will review a variety of neuroimaging topics of particular interest to the practicing neurologist.  

**Learning Objectives**  
- New insights into the latest neuroimaging technologies  
- New insights into the pathophysiology of a wide range of neurological disorders  
- Gain the ability to better apply neuroimaging technologies to the bedside differential diagnosis of various neurological disorders  

**Schedule**  
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 9:40</td>
<td>Use of Newer MRI Sequences in Clinical Practice, Bijal Mehta, MD, MPH</td>
</tr>
<tr>
<td>9:40 - 10:20</td>
<td>Role of Neuroimaging in Brain Recovery, Ramy El Khoury, MD</td>
</tr>
<tr>
<td>10:20 - 10:30</td>
<td>Discussion</td>
</tr>
<tr>
<td>10:30 - 10:45</td>
<td>Break/Exhibits</td>
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<tr>
<td>10:45 - 11:20</td>
<td>Intracranial Cysts, John Bertelson, MD</td>
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<tr>
<td>11:20 - 11:55</td>
<td>Critical Care Imaging, Joshua P. Klein, MD, PhD</td>
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<td>11:55 - 12:00</td>
<td>Discussion</td>
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<tr>
<td>12:15 - 12:45</td>
<td>Philips Healthcare Lunch &amp; Presentation</td>
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<tr>
<td>1:00 - 1:50</td>
<td>Epilepsy Imaging, Joshua P. Klein, MD, PhD</td>
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<td>1:50 - 2:40</td>
<td>Imaging in Dementia, John Bertelson, MD</td>
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<tr>
<td>2:40 - 3:00</td>
<td>Discussion</td>
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</tbody>
</table>
Concurrent Session: Current Topics in Neurosonology
Part I and Part II
CME: 4.75
9:00 am - 3:00 pm, North Ballroom

Course Directors
Zsolt Garami, MD, RPVI (Part I) and
Alexander Razumovsky, PhD, FAHA (Part II)

Course Description
This course will highlight basics of Transcranial Doppler (TCD) and carotid ultrasound physics as well as techniques of examinations, their clinical applications, and interpretations. Part I is for individuals seeking basic knowledge of Neurosonology.

Part II is for individuals interested in performing and interpreting carotid duplex and Transcranial Doppler studies. Exposure to practical application and interpretation in the form of real case presentations will be done. This part of the Advanced Neurosonology Course will provide attendees with an opportunity to review cases with expert faculty. Case materials will include both carotid duplex and Transcranial Doppler examinations, and will highlight examples showing multiple concepts, unusual findings, and artifacts. The format will include team-teaching with presentation of cases and time for discussion and questions between cases.

Learning Objectives
• Demonstrate a basic knowledge of the extra- and intracranial arterial vascular anatomy, physiology, and pathophysiology.
• Recognize characteristic patterns of blood flow in the extra- and intracranial vessels.
• Identify proper techniques for performing comprehensive carotid and TCD studies. Relate normal and abnormal blood flow patterns to clinical presentation.
• Recognize and interpret carotid and TCD ultrasound findings. Understand clinical usefulness and limitations of the carotid and TCD ultrasound evaluations.

Schedule – Part I

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>9:00 - 9:20</td>
<td>Carotid duplex protocol, Esther Collado, RN, RVT</td>
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<tr>
<td>9:20 - 9:40</td>
<td>Transcranial Doppler Protocol, Esther Collado, RN, RVT</td>
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<tr>
<td>9:40 - 10:00</td>
<td>Reporting Requirement, Marge Hutchisson, RVT, RDCS</td>
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<tr>
<td>10:00 - 10:20</td>
<td>Waveform Recognition, Andrei Alexandrov, MD, RVT</td>
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<td>10:20 - 10:30</td>
<td>Discussion</td>
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<td>10:30 - 10:45</td>
<td>Break/Exhibits</td>
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<tr>
<td>10:45 - 11:00</td>
<td>Subclavian vs Vertebral Steal, Zsolt Garami, MD, RPVI</td>
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<tr>
<td>11:00 - 11:15</td>
<td>TCD in the NICU - Braindeath, Alexander Razumovsky, MD, PhD</td>
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<td>11:15 - 11:30</td>
<td>TCD Bubble Test for PFO/ASD, Zsolt Garami, MD, RPVI</td>
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<tr>
<td>11:30 - 11:45</td>
<td>Grading Carotid Stenosis, Andrei Alexandrov, MD, RVT</td>
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<tr>
<td>11:45 - 12:00</td>
<td>IAC Accreditation: Issues and Answers, Marge Hutchisson, RVT, RDCS</td>
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<tr>
<td>12:15 - 12:45</td>
<td>Philips Healthcare Lunch &amp; Presentation</td>
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Schedule – Part II

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>1:00 - 1:30</td>
<td>Classification of extracranial carotid artery stenosis, Charles Tegeler, MD</td>
</tr>
<tr>
<td>1:30 - 2:00</td>
<td>Classification of intracranial stenosis, Andrei Alexandrov, MD, RVT</td>
</tr>
<tr>
<td>2:00 - 3:00</td>
<td>Role of Transcranial Doppler for Monitoring Cerebral Vasospasm in Neurocritical Care: Time for Reassessment, Alexander Razumovsky, PhD, FAHA</td>
</tr>
</tbody>
</table>

Industry-Sponsored Lunch: Advances in Neuroimaging with Philips Healthcare North America
CME: None
12:15 – 12:45 pm, Center Ballroom

Speaker
Troy Havens, Senior Field Marketing Manager
**Advocacy and Business of Neuroimaging**
CME: None
3:00 - 4:00 pm, Center Ballroom

**Course Director**
Joseph Fritz, PhD

**Course Description**
There are quality of care and business advantages to operating advanced imaging within a clinical practice. Tomographic imaging is an important diagnostic tool that is regularly used by all neurologists. A growing number of neurologists are considering ways to form larger groups that can mitigate increasing overhead through economies of scale. Such groups should be able to justify operating imaging in-house. This course aims to clarify the business and regulatory issues involved in operating in-house imaging services. An update will be given on advocacy efforts through the American Academy of Neurology, the Coalition for Patient Centered Imaging, and the American Society of Neuroimaging.

**Learning Objectives**
- Understand the pro forma analysis to justify the purchase of imaging equipment and identify strategies to improve profitability
- Review regulatory and accreditation requirements.
- Discuss future trends in imaging authorization and appropriate use criteria, and the impact of MACRA on maintaining the in-office ancillary exemption

**Symposium: Hyper-acute Imaging of Stroke: New Frontiers and Novel Approaches**
CME: 2 hours
4:00 - 6:00 pm, Center Ballroom

**Course Director**
Nerses Sanossian, MD, FAHA

**Course Description**
In this session we will review imaging of stroke patients in the hyper-acute phase prior to leaving the Emergency Department. We will review what constitutes a standard evaluation, what is the current cutting edge in imaging paradigm, as well as discussing future directions. The course will cover imaging modalities including ultrasound, CT/MRI, angiography, as well as the emerging field of prehospital imaging. Course participants will gain knowledge relating to novel imaging sequences and their integration into a rapid imaging paradigm designed at identifying patients who would benefit from aggressive therapy.

**Learning Objectives**
- Review of the current imaging guidelines and standard of care for acute intracerebral hemorrhage
- Utilization of ultrasound in the emergent evaluation of stroke patients in the Emergency Department
- Review of the potential role of prehospital imaging in stroke evaluation and treatment
- Comprehensive review of vessel imaging: when to order angiography and which modality to use

**Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>4:00</td>
<td>Rapid Imaging in the Evaluation and Treatment of Acute Stroke: Introduction and breadth overview, Nerses Sanossian, MD, FAHA</td>
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<tr>
<td>4:05</td>
<td>Carotid Ultrasound and TCD for Rapid Diagnosis in the Emergency Department, Mark N. Rubin, MD</td>
</tr>
<tr>
<td>4:30</td>
<td>Advanced Imaging for Mobile Stroke Unit: Exploring the First 60 Minutes of Ischemia, Andrei Alexandrov, MD, RVT</td>
</tr>
<tr>
<td>5:05</td>
<td>Vessel imaging in the Earliest Phase of Stroke, Adnan Qureshi, MD</td>
</tr>
<tr>
<td>5:35</td>
<td>Hyper-acute Imaging of Intracerebral Hemorrhage: Is Non-contrast CT Enough?, Nerses Sanossian, MD, FAHA</td>
</tr>
<tr>
<td>5:50</td>
<td>Discussion</td>
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</tbody>
</table>

**NOTE**
CME Credits. The CME form will be sent with the Annual Meeting Evaluation after the meeting. The email will come from asn@llmsi.com. The CME form can be downloaded from the last page of the evaluation. Please save your CME form for your records. ASN does not track attendee CME hours and replacement forms will incur a replacement fee.
Friday, January 15

Concurrent Session: MRI Workshop
CME: 3 hours
7:00 - 10:00 pm, Crystal Room

Course Directors
Eduardo Gonzalez-Toledo, MD and Patrick Capone, MD, PhD

Faculty
Christina Ledbetter, PhD

Course Description
This workshop provides participants with an opportunity to become familiar with some of the basic tools of functional imaging that are being used for basic neurological research and are gradually finding increasing clinical utility. The hands-on tutorial will provide both some experience with their use and familiarization with some of the on-line sites and software that assist the interested researcher or clinician with these techniques. Strong computer skills are not required. Unlike previous years' hands-on MRI Workshop this program is not designed to instruct the participants on how to interpret standard clinical studies.

This workshop will train the participants to perform 3D reconstructions of the brain, measure cortical thickness, obtain maps of white matter connectivity, reconstruct white matter tracts, measure fractional anisotropy and obtain maps of resting state f MRI in their computers (preferably PCs) using free software downloaded from internet. Detailed instructions to download, install and operate the software will be provided. We will install the software during the workshop in participant's computers.

We will send the basic software to participants by email before the Course. During the workshop participants will follow step-by-step instructions to reach the final result. The participants who don't want to bring their computers will receive the tutorials “for physicians” and will also have the live instruction during the meeting.

Learning Objectives
- Recognize and use file formats DICOM, analyze, NifTi, nrrd
- Review equipment and expertise requirements in performing selected tasks with faculty using hands-on, instructional video, or real-time case recordings.
- Perform cortical reconstruction and obtain brain segmentation, cortical thickness and white matter connectivity
- Perform resting state fMRI with seed methodology and compare patient with normal subjects

Schedule
7:00 - 7:30 Image formats: DICOM, analyze, nrrd, NifTi and How to read a DICOM header, Eduardo Gonzalez-Toledo, MD
7:30 - 8:30 How to reconstruct the cerebral cortex using BrainSuite and Segmentation and cortical thickness, Eduardo Gonzalez-Toledo, MD
8:30 - 9:00 Working with DTI: 3D-Slicer, Measuring fractional anisotropy, Color coded maps, and Fiber tracking, Eduardo Gonzalez-Toledo, MD
9:00 - 10:00 Resting state fMRI, Matlab, Statistical parametrical mapping (spm), REST, Eduardo Gonzalez-Toledo, MD

Concurrent Session: Neurosonology Workshop
CME: 3 hours
7:00 - 10:00 pm, South Ballroom

Course Directors
Andrei Alexandrov, MD, RVT and Zsolt Garami, MD, RPVI

Faculty
Alexander Razumovsky, PhD, FAHA, Mark N. Rubin, MD, and Charles Tegeler, MD

Course Description
This workshop will provide structured hands-on and question and answer sessions in carotid/vertebral duplex and specific transcranial Doppler techniques complete testing, emboli detection, right-to-left shunt detection and assessment of vasomotor reactivity. Both the beginner and experienced users are encouraged to attend. The workshop will also provide an opportunity to try the latest equipment, to meet experts, and to discuss various aspects of Neurosonology in small groups. The workshop is designed to meet the need for basic and advanced knowledge of insonation techniques, technological advances, and practical aspects of cerebrovascular testing.

Learning Objectives
- Review complete scanning protocols for diagnostic carotid/vertebral duplex and TCD examinations, vasomotor reactivity, emboli detection, right-to-left shunt testing, and monitoring procedures (thrombolysis, head-turning, peri-operative testing), and IMT measurements.
- Review equipment and expertise requirements in performing selected tasks with faculty using hands-on, instructional video, or real-time case recordings.
Saturday, January 16

**Concurrent Breakfast Seminar: Diagnostic and Interventional Fetal Neurology**
CME: 1.5 hours
7:00 - 8:30 am, Center Ballroom

**Course Director**
Adnan Qureshi, MD

**Course Description**
Antenatal diagnosis of neurological disorders such as spina bifida, hydrocephalus, or intraventricular hemorrhage is currently possible using fetal ultrasound and magnetic resonance imaging (MRI). In utero treatment of myelomeningocele in fetuses with spina bifida may preserve neurologic function by preventing spinal cord exposure totonic fluid, reverse hindbrain herniation, and diminish the need for post-natal ventriculoperitoneal shunt placement as shown in the Management of Myelomeningocele Study (MOMS) trial. While fetal cardiology is a well-developed subspecialty within pediatric cardiology, involvement of neurologists and particularly neuroimagers is required to develop the field of fetal neurology. Currently, both cardiologists and family medicine physicians have a pathway for certification for performing fetal ultrasound. The symposium will lead to recognition and awareness among the neurology community to establish formal certification processes.

**Learning Objectives**
- To review unique aspects of fetal ultrasound and MRI principles in regards to fetal neuroimaging.
- To review antenatal neuroimaging findings in normal fetuses and in diseases such as spina bifida, hydrocephalus, intraventricular hemorrhage, Chiari malformation, and cortical dysgenesis syndromes.
- To review recent data on imaging of cerebral arteries and veins in fetuses.
- To provide introduction into prenatal interventional procedures with emphasis on minimally invasive spina bifida closure.

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**Concurrent Breakfast Seminar: TCD in the ICU – TCD for Early Detection of Vasospasm and ICP Tailored Management**
CME: 1.5 hours
7:00 - 8:30 am, North Ballroom

**Course Director**
Gregory Kapinos, MD, MS

**Course Description**
The lecturer will cover the reason why treating all patients with intracranial pressure (ICP) elevation with the same best one-shot therapy, above a certain threshold of mean ICP, has been proven to have limited impact on outcomes after acute cerebral injury. Reducing ICP or elevating mean arterial pressure (MAP) to conserve cerebral perfusion pressure (CPP) has been debated by opposite schools of thoughts.

This course will reveal that a certain group of patients at risk of raised ICP can benefit from ICP reduction by osmotherapy alone, another distinct group can benefit from MAP augmentation alone and finally a third select group usually benefits better from dual-targeted treatment, while a fourth group could receive no treatment. (Table)

This course then teaches how to use the results in all acute neurologic injuries at risk of cerebral edema and/or ischemia in order to tailor/individualize the ICP treatment for that particular patient in the ER or Neuro-ICU. It is supported by one institutional preliminary data on 5 patients.

**Learning Objectives**
- Understand why brain compliance is more important than true ICP. Understand why Lund and Robertson’s concepts on treatment of ICP seem to clash but can be reconciled, once heterogeneity of victims pathophysiology is grasped.
- Learn how to obtain peak systolic velocities, end-diastolic velocities, calculate pulsatility and resistivity index, with classic TCD machines as well as with transcranial echography from regular ICU ultrasound machines. Learn how optic nerve sheath diameter can help refine these assessments of compliance and perfusion.
- Learn how to interpret these results to guide the therapeutic selection for vasospasm as well as for ICP elevation (precision medicine for cerebral ischemia with a novel 4-tier tailored ICP therapy): not all accelerations on TCD deserve a lot of fluids after SAH and certain types of patients may be better suited to mannitol than hypertonic saline for osmotherapy and mechanical ventilation as well as vasopressors can be adjusted to the needs of one particular patient, based on the TCD results for ICP abnormality.

**Schedule**
7:00 – 8:00 TCD for management of vasospasm, Gregory Kapinos, MD, MS
8:00 – 8:30 TCD for management of ICP, Gregory Kapinos, MD, MS
Saturday, January 16

Concurrent Session: Current Topics in MR/CT Part II
CME: 4.75
9:00 am - 3:00 pm, Center Ballroom

Course Directors
John Bertelson, MD and Gabriella Szatmary, MD, PhD

Course Description
This course will review a variety of neuroimaging topics of particular interest to the practicing neurologist.

Learning Objectives
• New insights into the latest neuroimaging technologies
• New insights into the pathophysiology of a wide range of neurological disorders
• Gain the ability to better apply neuroimaging technologies to the bedside differential diagnosis of various neurological disorders

Schedule
9:00 - 9:40 Neuro-oncology, Laszlo Mechtler, MD, FAAN
9:40 - 10:20 Imaging in Patients with Visual Complaints, Gabriella Szatmary, MD, PhD
10:20 - 10:30 Discussion
10:30 - 10:45 Break
10:45 - 11:20 Congenital Malformations, Jennifer McVige, MD, MA
11:20 - 11:55 Case Presentation, DENT Fellows
11:55 - 12:00 Discussion
12:00 - 1:00 Presidential Address Luncheon
1:00 - 1:50 Imaging of Toxic-Metabolic Disorders, Dara G. Jamieson, MD
1:50 - 2:40 Spine Imaging, Patrick Capone, MD, PhD
2:40 - 3:00 Discussion

Concurrent Session: Current Topics in Neurosonology Part II
CME: 4.75
9:00 am - 3:00 pm, North Ballroom

Course Director
Alexander Razumovsky, PhD, FAHA

Course Description
This section of the advanced Neurosonology course will include discussion of the clinical value of the intima-media thickness evaluation, advanced studies for specific TCD applications, like for patients after SAH, traumatic brain injuries, ischemic stroke, cryptogenic stroke, application and interpretation of TCD for patients with PFO. Advanced TCD monitoring during cardiovascular and cardiothoracic surgeries. The faculty will discuss TCD ultrasound technique and interpretation of different procedures. Ple time will be left for questions and discussion. Upon completion of this course, participants will be able to identify abnormal findings. Interpretation and clinical applications of the above-mentioned specific carotid duplex and TCD applications will be provided. The course material is designed for participants seeking advanced knowledge of Neurosonology and its current clinical applications.

Learning Objectives
• Identify techniques and protocols for performing advanced cerebrovascular studies using carotid duplex scans, real-time spectral Doppler analysis and understand the clinical usefulness and limitations of the carotid duplex and TCD examinations.
• Achieve experience in acquiring and interpreting advanced carotid duplex and TCD testing in patients with cerebrovascular abnormalities, i.e., acute stroke, extra- and intracranial stenosis, subarachnoid and intracerebral hemorrhage, traumatic brain injury.
• Recognize characteristic patterns of cerebral blood flow velocities pattern through cerebral vessels and relate normal and abnormal cerebrovascular blood flow to clinical presentations, thus improving quality of diagnostic testing and patients' outcomes

Schedule
9:00 - 10:30 TCD and Carotid Duplex Studies Interpretations, Charles Tegler, MD and faculty
10:30 - 10:45 Break
10:45 - 12:00 TCD and Carotid Duplex Studies Interpretations (cont.), Charles Tegler, MD and faculty
12:00 - 1:00 Break for Lunch
1:00 - 1:20 From carotid intima-media thickness to plaque: consensus and new developments, Alexander Razumovsky, MD, PhD
1:20 - 2:00 TCD in the Out Patient andbulatory Settings, Mark Rubin, MD
2:00 - 2:20 Specific TCD applications for Patients with acute stroke, Andrei Alexandrov, MD, RVT
2:20 - 2:40 Specific TCD Applications for Patients after Traumatic Brain Injury, Alexander Razumovsky, PhD, FAHA
2:40 - 3:00 TCD Monitoring during invasive cardiovascular procedures, Zsolt Garami, MD
The Neuroimaging Self-Assessment Examination (SAE) is intended to be a Neuroimaging self-assessment tool, providing participants with a structured opportunity to gain insight into their own personal strengths and weaknesses relative to their peers in the provision and clinical evaluation of Neuroimaging studies. Knowledge and skills to be assessed in this setting will include identification of normal anatomical structures, accuracy in the identification of specific pathologies on MRI and CT studies, formulation of Neuroimaging differential diagnoses, basic MRI and CT physics knowledge, and the ability to correlate imaging findings with clinical history. Subject matter covered by the SAE will include diagnostic neuroimaging of common neurological disorders such as cerebrovascular disease, multiple sclerosis, CNS trauma, tumors and cysts, infections, toxic/metabolic disorders and diseases of the spinal cord and surrounding tissues. Knowledge of basic MRI and CT physics principles essential for protocol design, safety, recognition of artifact and differentiation of tissue types based upon CT density and MRI signal characteristics will also be assessed. The SAE will be presented in a multiple choice PowerPoint format projected on a screen to the audience with one minute allotted per question. The subject matter will include clinical neuroimaging questions as well as questions related to imaging physics and technology. Each question will consist of a short text passage describing a clinical vignette or set of specific imaging-related parameters, accompanied by images or diagrams, followed by five answer options in multiple-choice format. Attendees will mark the single best answer to each question on a provided answer sheet, which will be self-graded at the end of the testing period. Each question will be reviewed quickly, with an explanatory answer provided at the end of the one hour testing period. Clinical cases will incorporate detailed, high-resolution MRI and CT images of the brain and spine (including MR and CT angiography).

Learning Objectives
• Become more familiar with personal strengths and weaknesses in the identification of normal versus abnormal imaging findings.
• Become more familiar with personal strengths and weaknesses in formulating a differential diagnosis pertaining to specific imaging presentations.
• Achieve greater levels of confidence in acquiring and interpreting MRI and CT studies in the assessment of common neurological disorders such as MS, stroke, tumor and trauma.
• Be able to identify areas of future study to increase levels of competence in the interpretation of diagnostic Neuroimaging cases.
• Be able to identify areas of future study to increase levels of competence in MRI and CT physics.

Symposium: Current Clinical Nuclear Neurology with PET, SPECT and Scintigraphy
CME: 1 hour
4:30 - 5:30 pm, Center Ballroom

Course Director
Robert Miletich, MD, PhD

Course Description
Although most in the neurology and clinical neuroscience communities have some familiarity with positron emission tomography (PET) and single photon emission computed tomography (SPECT), knowledge of the practical utilization of these modalities for clinical patients is not as prevalent. This lack of knowledge of applied Nuclear Neurology extends to what clinical questions can be addressed by PET, SPECT and scintigraphy, what radiopharmaceuticals are clinically available (ie. approved by FDA) and what types of studies can be performed. This course focuses on practical, present day, clinical application of Nuclear Neurology, presenting some basic science, but illustrating concepts and applications through clinical material from the speaker's daily clinical practice. The capacity of Nuclear Neurology to address management questions which arise in multiple disease states will be discussed. Radiopharmaceuticals available clinically will be presented. Imaging indications in the disease states of dementia, neurodegenerative disease, neuro-oncology, epilepsy, parkinsonism, movement disorders, cerebrovascular disease, neuropsychiatric disorders and other less common settings will be reviewed. Many third-party payers currently make reimbursements based on these indications. Standard and newly developed imaging techniques will be discussed. Finally, government-mandated training requirements for Nuclear Neurology will be presented. By measuring some aspect of nervous system function, Nuclear Neurology provide information that often is unobtainable from other sources, thus facilitating more rationale and cost-effective management.

Learning Objectives
• Know what kind of Nuclear Neurology studies are currently available to help manage patients, including which radiopharmaceuticals are FDA-approved.
• Understand what clinical questions can be addressed in different neurologic disease states by clinically available PET, SPECT and scintigraphy.
• Decide how best to incorporate Nuclear Neurology into clinical practice, either through collaboration with other physician groups or pursuing government-mandated nuclear training.
Symposium: Imaging in Teleneurology
CME: 2 hours
6:00 - 8:00 pm, Center Ballroom

Course Director
Neeraj Dubey, MD, FAAN

Course Description
The purpose of this course is to integrate imaging and teleneurology. Teleneurology is increasingly becoming an important tool in community hospitals to evaluate patients with acute neurological events and the role of imaging in teleneurology is substantial. The treating teleneurologist has to rely on wide-ranging radiological services, including CT CTA, MRI, MRA, EEG, and Doppler studies to provide prompt, effective, and meaningful acute care. The role of teleneurologists in assessing patients with stroke, cord compression, epilepsy, neuro ICU care, change in mental status, etc. depends largely on being able to confidently read images, make meaningful interpretation, and direct care.

Learning Objectives
• Role of imaging in teleneurology consults
• Challenges in imaging and management of patients with teleneurology services

Schedule
6:00 - 7:00 University of Pittsburgh Medical Center Review – Teleneurology & Imaging, Maxim Hammer, MD
7:00 - 8:00 Private Practice Teleneurology – Management of ICH and Acute Stroke, Case Reviews, Leonard DaSilva, MD

2016 Faculty and Program Committee Disclosures

Andrei Alexandrov, MD, RVT
(PC, F) No relationships

John Bertelson, MD
(PC, F) No relationships

Patrick Capone, MD, PhD
(F) No relationships

Esther Collado, RN, RVT
(F) No relationships

Ramy El Khoury, MD
(F) No relationships

Leonard DaSilva, MD
(F) Patronus Medical: founder and partner, providing Teleneurology and Concierge care. Spouse: founder and investor at Patronus Medical

Neeraj Dubey, MD, FAAN
(F) No relationships

Emma Fields, APRN-CNP
(PC, F) No relationships

Joseph Fritz, PhD
(PC, F) Allergan: Stipend, Consulting; Toshiba Medical Systems: Presentation; American Academy of Neurology: Honoraria

Zsolt Garami, MD, RPVI
(F) Allergan: Grant; Stryker: Consultant; Luminal Therapeutics: Consultant; Medtronic: Consultant; Philips Healthcare: Grant; St. Jude Medical: Consultant; Toshiba: Consultant

Eduardo Gonzalez-Toledo, MD
(F) No relationships

Ryan Hakimi, DO, MS
(PC, F) No relationships

Maxim Hammer, MD
(F) Medical legal consultations; consultant

Geoffrey Hartwig, MD
(PC) No relationships

Michael Hutchinson, MD, PhD
(PC) No relationships

Marge Hutchisson, RVT, RDCS
(F) No relationships

Dara Jamieson, MD
(PC, F) No relationships

Gregory Kapinos, MD, MS
(F) No relationships

Joshua P. Klein, MD, PhD
(PC, F) McGraw Hill Publishers: Author, Editor, Editorial Board member; American Academy of Neurology Institute: Section Chair; Course Director; Lecturer; Author, Committee member; Audio Digest Foundation: Scientific Chair, Neurology Board Review Course; Best Doctors, Inc.: Advisor; Guidepoint Global, LLC: Consultant; Aladdin Dreamer, Inc.: Scientific Advisory Board member; HeplerBloom, LLC: Medical expert; Anaesthesia Associates of Massachusetts: Medical expert

Christina Ledbetter, PhD
(F) No relationships

David Liebeskind, MD
(PC) Stryker: Consultant; Covidien: Consultant

Paul Maertens, MD
(PC) UCB: speaker; Supernus: speaker

Marc Malkoff, MD
(PC) No relationships

Jennifer McGee, MD, MA
(F) No relationships

Laszlo Mechtler, MD, FAAN
(PC, F) Allergan: Honorarium; Pernix: Honorarium; Teva: Honorarium

Bijal Mehta, MD, MPH
(F) No relationships

Robert Miletich, MD, PhD, FAAAS
(F) No relationships

Erasmo Passaro, MD
(PC) UCB: Honorarium; Sunovion: Honorarium; Accordia: Consultant

James Pipe, PhD
(F) Philips Healthcare: Grant Support, MR development research

Adnan Qureshi, MD
(PC, F) No relationships

Alexander Razumovsky, PhD
(PC, F) FTE: Salary

Vernon Rowe, MD
(F) Vernon Pharmaceuticals Inc.; CEO

Mark Rubin, MD
(F) No relationships

Nerses Sanossian, MD
(F) No Relationships

Gabriella Szatmáry, MD, PhD
(PC) No relationships

Lawrence Wechsler, MD
(PC) Lundbeck: Consultant; San Bio: Consultant; Silk Road Medical: Stockholder; DSMB - Dias 3/4; Biogen Idec Steering Committee - ACT I

13
Presidential Address & Awards Luncheon
ASN Business Meeting Agenda

Hilton Lake Buena Vista, Orlando
Saturday, January 16, 2016
12:00-1:00 pm

1. Call to Order
   Michael Hutchinson, MD, PhD - President

2. Approval of Minutes
   January 17, 2015 Business Meeting
   (sent electronically)
   VOTE

3. President's Report
   Michael Hutchinson, MD, PhD
   Second Term Board Members:
   Patrick Capone, MD, PhD
   Zsolt Garami, MD
   Gabriella Szatmary, MD, PhD
   Vernon Rowe, MD
   VOTE

4. Program Committee Report
   David Liebeskind, MD, PhD
   2017 Annual Meeting – 40th Anniversary:
   Rio del Mar – Puerto Rico, January 17-22, 2017
   NEW DATE!

5. Treasurer's Report
   Neeraj Dubey, MD

6. Certification Committee Report
   Dr. Hutchinson for Joseph Masdeu, MD, PhD

7. Journal of Neuroimaging Report
   Rohit Bakshi, MD

8. Membership Committee Report
   Joshua Klein, MD, PhD

9. Practice Issues Committee Report
   Elizabeth Rowe, PhD

10. New Business

11. Adjourn

Award Winners

Awards will be presented Thursday, January 14, 2016 during the Welcome Reception.

Qureshi Award. The Qureshi Award is for the best abstract based on research in diagnostic angiography or endovascular procedures.

2016 Qureshi Award Recipient
Vishal Jani, MD
Michigan State University, East Lansing, Michigan
Impact of phenomena “Distal Embolization” in current acute ischemic stroke (AIS) treatment for emergent large vessel occlusion (ELVO)

Oldendorf Award. The Oldendorf Award is for the best abstract based on research in CT, MRI, SPECT or PET.

2016 Oldendorf Award Recipient
Virendra R. Mishra, PhD
Cleveland Clinic Lou Ruvo Center for Brain Health, Las Vegas, Nevada
Predicting cognitive impairment in active professional fighters using multimodal MRI

McKinney Award. The McKinney Award is for the best abstract based on research in neurosonology.

2016 McKinney Award Recipient
Jay H. Levin, MD
Rhode Island Hospital, Brown University, Providence, Rhode Island
Transcranial Doppler Ultrasonography is a monitoring tool for Reversible Cerebral Vasospasm Syndrome

Resident Travel Awards. The Resident Travel awards are presented to the two top-ranked abstracts submitted by a resident/fellow for poster presentations.

2016 Resident Travel Award Recipients
Matthew Boyko, MD
University of Calgary
Comparison of Conventional Doppler Ultrasound with other Angiographic Modalities in the Measurement of Carotid Artery Stenosis

Haris Kamal, MD
University at Buffalo Neurology
Neuro-Behçet's disease masquerading as Brain abscesses on MRI
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