



39th

ANNUAL MEETING

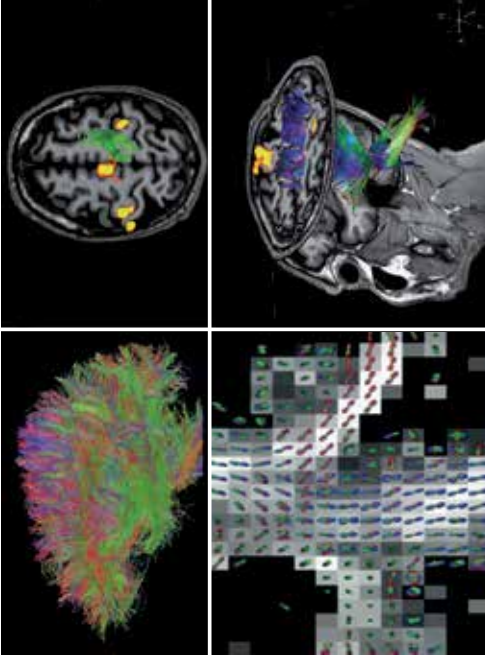
Neuroimaging For Clinicians, By Clinicians

JANUARY 14-17, 2016

HILTON ORLANDO LAKE BUENA VISTA

ORLANDO, FLORIDA





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.

PHILIPS

2016 ASN ANNUAL MEETING

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NOTE

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.

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.

Save the Date! ASN's 40th Annual Meeting. January 17-22, 2017. Puerto Rico

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

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FANA

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*Neurosonology Examination
Committee*
Andrei Alexandrov, MD, RVT

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Practice Guidelines Committee
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Practice Issues Committee
Elizabeth Rowe, PhD, MBA

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Laszlo Mechtler, MD, FAAN

Vice President
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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
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Paul Maertens, MD
Marc Malkoff, MD
Laszlo Mechtler, MD, FAAN
Erasmus Passaro, MD
Adnan Qureshi, MD
Alexander Razumovsky, PhD, FAHA
Gabriella Szatmáry, MD, PhD
Charles Tegeler, MD
Lawrence Wechsler, MD

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Program At a Glance

THURSDAY, JANUARY 14, 2016

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

FRIDAY, JANUARY 15, 2016

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

SATURDAY, JANUARY 16, 2016

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

ASN 2016 Annual Meeting Faculty

Andrei Alexandrov, MD, RVT

The University of Tennessee Health Science Center
Memphis, Tennessee

John Bertelson, MD

University of Texas – Austin Dell Medical School
Austin, Texas

Patrick Capone, MD, PhD

Winchester Neurological Consultants
Winchester, Virginia

Esther Collado, RN, RVT

The Methodist Hospital
Houston, Texas

Ramy El Khoury, MD

Tulane University School of Medicine
New Orleans, Louisiana

Leonard DaSilva, MD

Tallahassee Neurological Clinic
Tallahassee, Florida

Neeraj Dubey, MD, FAAN

Neurology & Stroke Associates, PC
Lititz, Pennsylvania

Emma Fields APRN-CNP

University of Oklahoma Health Sciences Center
Oklahoma City, Oklahoma

Joseph Fritz, PhD

Dent Neurologic Institute
Amherst, New York

Zsolt Garami, MD, RPVI

The Methodist Hospital
Houston, Texas

Eduardo Gonzalez-Toledo, MD

Louisiana State University Health Sciences Center
Shreveport, Louisiana

Ryan Hakimi, DO, MS

University of Oklahoma Health Sciences Center
Oklahoma City, Oklahoma

Maxim Hammer, MD

University of Pittsburgh Medical Center
Pittsburgh, Pennsylvania

Marge Hutchisson, RVT, RDCS

Intersocietal Accreditation Commission
Ellicott City, Maryland

Dara Jamieson, MD

Weill Cornell Medical Center
New York, New York

Gregory Kapinos, MD, MS

North Shore-LIJ Health System
New York, New York

Joshua Klein, MD, PhD

Brigham and Women's Hospital
Boston, Massachusetts

Christina Ledbetter, PhD

Louisiana State University Health Sciences Center
Shreveport, Louisiana

Jennifer McVige, MD, MA

Dent Neurologic Institute
Amherst, New York

Laszlo Mechtler, MD, FAAN

Dent Neurologic Institute
Amherst, New York

Bijal Mehta, MD, MPH

UCLA David Geffen School of Medicine
Los Angeles, California

Robert Miletich, MD, PhD

The State University of New York at Buffalo
Buffalo, New York

James Pipe, PhD

Barrow Neurological Institute
Phoenix, Arizona

Adnan Qureshi, MD

University of Minnesota
Minneapolis, Minnesota

Alexander Razumovsky, PhD, FAHA

Sentient NeuroCare Services, Inc.
Hunt Valley, Maryland

Vernon Rowe, MD

MidAmerica Neuroscience Institute
Lenexa, Kansas

Mark Rubin, MD

NorthShore Neurological Institute
Glenview, Illinois

Nerses Sanossian, MD

University of Southern California
Los Angeles, California

Gabriella Szatmáry, MD, PhD

Hattiesburg Clinic
Hattiesburg, Mississippi

Charles Tegeler, MD

Wake Forest University School of Medicine
Winston-Salem, North Carolina

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

1:00 - 1:30	Introduction to CT and CTA Imaging
1:30 - 2:00	Introduction to MRI /MRA Imaging Principles
2:00 - 2:30	Introduction to TCD and Carotid Duplex Principles
2:30 - 3:00	Hemorrhagic lesions as seen on Head CT/MRI
3:00 - 3:30	Ischemic lesions as seen on Head CT/MRI
3:30 - 3:45	Break
3:45 - 5:50	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

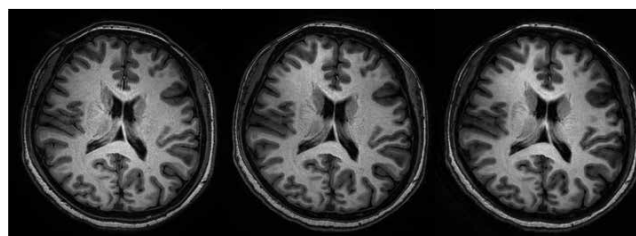
James Pipe, PhD



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 X-ray. The immediate goal is the solution of all engineering challenges to increased scanning efficiency using "Spiral MRI", which also maintains or increases 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 ADC = 5ms Scan time = 4:50 SNR = 38	Spiral ADC = 6ms Scan time = 4:26 SNR = 37	Spiral ADC=20ms Scan time = 2:50 SNR = 50
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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.

Friday, January 15

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 effects.

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 ultrasound 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.

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

9:00 - 9:40	Use of Newer MRI Sequences in Clinical Practice, <i>Bijal Mehta, MD, MPH</i>
9:40 - 10:20	Role of Neuroimaging in Brain Recovery, <i>Ramy El Khoury, MD</i>
10:20 - 10:30	Discussion
10:30 - 10:45	Break/Exhibits
10:45 - 11:20	Intracranial Cysts, <i>John Bertelson, MD</i>
11:20 - 11:55	Critical Care Imaging, <i>Joshua P. Klein, MD, PhD</i>
11:55 - 12:00	Discussion
12:15 - 12:45	Philips Healthcare Lunch & Presentation
1:00 - 1:50	Epilepsy Imaging, <i>Joshua P. Klein, MD, PhD</i>
1:50 - 2:40	Imaging in Dementia, <i>John Bertelson, MD</i>
2:40 - 3:00	Discussion

Friday, January 15

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

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

Schedule – Part II

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

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



Friday, January 15

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

Schedule

3:00 - 3:30	Business of Neuroimaging, <i>Joseph V. Fritz, PhD</i>
3:30 - 4:00	Advocacy in Neuroimaging Update, <i>Vernon D. Rowe, MD</i>

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.

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

4:00 - 4:05	Rapid Imaging in the Evaluation and Treatment of Acute Stroke: Introduction and broad overview, <i>Nerses Sanossian, MD, FAHA</i>
4:05 - 4:35	Carotid Ultrasound and TCD for Rapid Diagnosis in the Emergency Department, <i>Mark N. Rubin, MD</i>
4:35 - 5:05	Advanced Imaging for Mobile Stroke Unit: Exploring the First 60 Minutes of Ischemia, <i>Andrei Alexandrov, MD, RVT</i>
5:05 - 5:35	Vessel imaging in the Earliest Phase of Stroke, <i>Adnan Qureshi, MD</i>
5:35 - 5:50	Hyper-acute Imaging of Intracerebral Hemorrhage: Is Non-contrast CT Enough?, <i>Nerses Sanossian, MD, FAHA</i>
5:50 - 6:00	Discussion

Learning Objectives

- Review of the current imaging guidelines and standard of care for acute ischemic stroke
- Review of the current imaging guidelines and standard

NOTE

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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 fMRI 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, <i>Eduardo Gonzalez-Toledo, MD</i>
7:30 - 8:30	How to reconstruct the cerebral cortex using BrainSuite and Segmentation and cortical thickness, <i>Eduardo Gonzalez-Toledo, MD</i>
8:30 - 9:00	Working with DTI: 3D-Slicer, Measuring fractional anisotropy, Color coded maps, and Fiber tracking, <i>Eduardo Gonzalez-Toledo, MD</i>
9:00 - 10:00	Resting state fMRI, Matlab, Statistical parametrical mapping (spm), REST, <i>Eduardo Gonzalez-Toledo, MD</i>

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, toning 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 of 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.

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)

The scholar will explain how to ascertain separately with Transcranial Doppler (TCD) if the preponderant pathophysiological issue for one particular patient is decreased cerebral compliance or if the issue is more inadequate cerebral perfusion. The lecturer will cover how TCD can help allocate judicious therapeutic nuanced therapy in the neuro-ICU and ER.

This course will cover technical aspects on how to obtain pulsatility index, resistivity index and end-diastolic velocities by TCD.

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, <i>Laszlo Mechtler, MD, FAAN</i>
9:40 - 10:20	Imaging in Patients with Visual Complaints, <i>Gabriella Szatmary, MD, PhD</i>
10:20 - 10:30	Discussion
10:30 - 10:45	Break
10:45 - 11:20	Congenital Malformations, <i>Jennifer McVige, MD, MA</i>
11:20 - 11:55	Case Presentation, <i>DENT Fellows</i>
11:55 - 12:00	Discussion
12:00 - 1:00	Presidential Address Luncheon
1:00 - 1:50	Imaging of Toxic-Metabolic Disorders, <i>Dara G. Jamieson, MD</i>
1:50 - 2:40	Spine Imaging, <i>Patrick Capone, MD, PhD</i>
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, <i>Charles Tegler, MD and faculty</i>
10:30 - 10:45	Break
10:45 - 12:00	TCD and Carotid Duplex Studies Interpretations (cont.), <i>Charles Tegler, MD and faculty</i>
12:00 - 1:00	Break for Lunch
1:00 - 1:20	From carotid intima-media thickness to plaque: consensus and new developments, <i>Alexander Razumovsky, MD, PhD</i>
1:20 - 2:00	TCD in the Out Patient ambulatory Settings, <i>Mark Rubin, MD</i>
2:00 - 2:20	Specific TCD applications for Patients with acute stroke, <i>Andrei Alexandrov, MD, RVT</i>
2:20 - 2:40	Specific TCD Applications for Patients after Traumatic Brain Injury, <i>Alexander Razumovsky, PhD, FAHA</i>
2:40 - 3:00	TCD Monitoring during invasive cardiovascular procedures, <i>Zsolt Garami, MD</i>

Saturday, January 16

Self Assessment Exam

CME: 1.5

3:00 - 4:30 pm, Crystal Room

Course Director

Dara Jamieson, MD

Course Description

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.

Saturday, January 16

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, <i>Maxim Hammer, MD</i>
7:00 - 8:00	Private Practice Teleneurology – Management of ICH and Acute Stroke, Case Reviews, <i>Leonard DaSilva, MD</i>

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) Philips Healthcare: grant, consultation; Rimed: equipment, consultation; Siemens: Travel, Advisory Board

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 McVige, 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

Erasmus 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, F) No relationships

Charles Tegeler, MD

(PC, F) 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

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 Vasoconstriction 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

Abstract Index

1. TB Vasculitis and Strokes in a Immucocompetent: Rare Diagnosis becomes more Rarer if not Thought.

Zain Guduru^{1,2,3}, Abhishek Purohit^{1,2,3}, Sandeep Rana^{1,2,3}

¹Allegheny General Hospital, Pittsburgh, PA, USA, ²Drexel School of Medicine, Philadelphia, PA, USA, ³Temple School of Medicine, Philadelphia, PA, USA

2. Impact of phenomena “Distal Embolization” in current acute ischemic stroke (AIS) treatment for emergent large vessel occlusion (ELVO)

Vishal Jani¹, Mohammad-Rauf Afzal², Muhammad Shah Miran², Ahmed Riaz², Jillian Schurr¹, Anmar Razzak¹, Syed Hussain¹, Adnan I Qureshi²

¹Michigan State Univ., East Lansing, MI, USA, ²University of Minnesota/ Dept. of Neurology and Neurosurgery, Minneapolis, MN, USA

3. Let's Tango: Approach to the Tandem Lesion

Nikil Swamy, Sonal Mehta

Palmetto Health Richland, Columbia, SC, USA

5. Cause of Paradoxical Emboli: Presence of Levo-Atrial Cardinal Vein

John Hanna, Deepa Bhupali, Daniel Antonello

Montefiore Medical Center & Albert Einstein College of Medicine New York, NY, USA

6. Don't Look the Other Way: Bow Hunter's Syndrome – an Unusual Cause of Posterior Circulation Stroke

Neville Jadeja, Krishna Nalleballe, Neha Mirchandani, John Hanna, Kathryn F Kirchoff-Torres

Albert Einstein School of Medicine, Bronx, NY, USA

7. Atrioesophageal Fistulas after Pulmonary Vein Isolation: a rare and deadly complication

Abhishek Purohit¹, Zain Guduru¹, Sonja Chaparala¹, Ashis Tayal^{1,2,3}

¹Allegheny General Hospital, Pittsburgh, PA, USA, ²Drexel School of Medicine, Philadelphia, PA, USA ³Temple School of Medicine, Philadelphia, PA, USA

8. Langerhans Cell Histiocytosis Presenting as a Meningioma on MRI

Madhureeta Achari², Cesar E. Escamilla Ocanas¹

¹Uniersided de Monterey Monterey, Mexico, ²University of Texas Medical School Houston Dept. of PM &R Houston, TX, USA

10. Neuroimaging of Hemophagocytic lymphohistiocytosis

Ajay Goenka, Krishna Nalleballe, Fatema Malbari

Montefiore Medical Center & Albert Einstein College of Medicine New York, NY, USA

11. Orbital Abscess: A Delayed Complication of Decompression for Proptosis Secondary to Grave's Ophthalmopathy

Reena T Gottesman¹, Kunal V Desai^{1,2}, Jessica L Zwerling¹

¹Albert Einstein College of Medicine/ Neurology Bronx, NY, USA, ²Jacobi Medical Center/Neurology Bronx, NY, USA

12. Diffuse Axonal Injury in the Corpus Callosum Relates to Long-Term Neuropsychological Functioning and Clinical Outcome in Severe Traumatic Brain Injury Patients

Adrienne Hezghia^{1,2}, Blandine Lesimple³, Clara Debarle², Elsa Caron², Sebastien Delphine², Mélanie Pélégri-Isaac², Damien Galanaud², Habib Benali², Louis Puybasset^{2,3}, Pascale Pradat-Diehl², Vincent Perlberg^{2,4}

¹University at Buffalo School of Medicine and Biomedical Sciences Buffalo, NY, USA, ²Pitié Salpêtrière Hospital, Paris, France, ³Sorbonne Universités, CNRS, INSERM, Laboratoire d'Imagerie Biomédicale (LIB), Paris, France, ⁴Brain and Spine Institute (ICM), Institute for Translational neurosciences (IHU-A-ICM), Bioinformatics and Biostatistics Platform, Paris, France

13. Hippocampal Hemorrhage in a 25-year-old Male Post Cardiac Arrest

Tracy L Huffstatler^{1,3}, Mark D Malkoff²

¹Methodist LeBonheur Healthcare-University Hospital Memphis, TN, USA, ²University of Tennessee Health Science Center-Dept. of Neurology Memphis, TN, USA, ³University of Tennessee Health Science Center, College of Nursing, Advanced Practice and Doctoral Studies Memphis, TN, USA

14. Neuro-Behçet's disease masquerading as Brain abscesses on MRI

Haris Kamal¹, Gil I Wolfe¹, Muhammad U Hafeez¹, Aisha Bushra¹, Karanbir Singh², Nicholas J Silvestri¹

¹Dept. of Neurology SUNY Buffalo Buffalo, NY, USA, ²Dent Neurologic Institute, Buffalo, NY, USA

15. Spinal MRI Leading to the Accurate Diagnosis and Appropriate Management of Spinal Dural Arteriovenous Fistula Related Myelopathy

Tasleema Khan, Chetan Gandhi, Derrick Robertson, Alfred Frontera

University of South Florida, Tampa, FL, USA

16. Characterization of spatiotemporal changes in local cerebral cortical complexity across the adult human lifespan

Sourav R. Kole¹, Carena A. Kole¹, Denise C. Park², Richard D. King¹

¹University of Utah/Center for Alzheimer's Care, Imaging, and Research Salt Lake City, UT, USA, ²University of Texas/ Center for Vital Longevity Dallas, TX, USA

17. Predicting cognitive impairment in active professional fighters using multimodal MRI

Virendra Mishra, Xiaowei Zhuang, Karthik Sreenivisan, Sarah Banks, Dietmar Cordes, Charles Bernick

Cleveland Clinic Lou Ruvo Center for Brain Health, Las Vegas, NV, USA

18. Apparent diffusion coefficient (ADC) without corresponding diffusion weighted imaging (DWI) changes in posterior circulation stroke

Peggy L Nguyen, Sebina Bulic, May Kim-Tenser

University of Southern California, Dept. of Neurology Los Angeles, CA, USA

20. A Rare Case of a Patient With Hashimoto's Encephalopathy with Abnormal Neuroimaging

Charles D Schutt, Niraja Suresh, Derrick Robertson

University of South Florida Morsani College of Medicine, Tampa, FL, USA

21. Can brain volume loss be detected during routine evaluation of images in neurologically asymptomatic HIV disease?

Stefan Stojanoski, Mladen Bjelan, Aleksandar Ragaji, Snezana Brkic, Vesna Turkulov, Dusko Kozic
University of Novi Sad Faculty of Medicine, Novi Sad, Serbia

22. A Case of Central Nervous System Tuberculosis

Jerry Wei, Neville Jadeja, Krishna Nalleballe
Montefiore Medical Center & Albert Einstein College of Medicine New York, NY, USA

23. Cerebral hemodynamics during balance system challenges: a transcranial Doppler study

Mohammed Alwatban¹, Benjamin Hage¹, Jessie Patterson¹, Edward Truemper², Julie Honaker¹, Greg Bashford¹
¹University of Nebraska Lincoln, NE, USA, ²Children's Hospital and Medical Center Omaha, NE, USA

24. Comparison of Conventional Doppler Ultrasound with other Angiographic Modalities in the Measurement of Carotid Artery Stenosis.

Matthew Boyko^{1,2}, Hayrapet Kalashyan², Ashfaq Shuaib², Harald Becher³, Maher Saqqur², Helen Romanchuk², Khurshid Khan²
¹University of Calgary, Dept. of Neurology Calgary, AB, Canada, ²University of Alberta, Stroke Program, Dept. of Neurology Edmonton, AB, Canada, ³University of Alberta, Mazankowski Alberta Heart Institute, Dept. of Cardiology Edmonton, AB, Canada

25. Massive Subdural Hematoma in an Infant with Lenticulate Striatal Vasculopathy

Maria Bramhall¹, Paul Maertens¹, Michael Zayek²
¹University of South Alabama Dept. of Neurology, Mobile, AL, USA, ²University of South Alabama/ Neonatology, Mobile, AL, USA

26. Characteristics of Ultrasound Laboratories that have Intersocietal Accreditation Commission (IAC) Transcranial Doppler (TCD) Accreditation in the United States

Mary B Farrell³, Endrit Ziu¹, Kevin D Cockroft¹, John Y Choi²
¹Penn State University Medical Center Hershey, PA, USA, ²Winchester Neurological Consultants, Inc Winchester, VA, USA, ³Intersocietal Accreditation Commission Ellicott City, MD, USA

27. Carotid Vessel Wall Volume Measurements by Three Dimensional Ultrasound Correlate with Magnetic Resonance Imaging Measurements

Hwaida Hannoush, Vandana Sachdev, Wen Li, Cynthia Brenneman, Katie Lewis, Steve Gonsalvez, Les G. Biesecker, David Bluemke, Jose Vargas
National Institutes of Health, Bethesda, MD, USA

30. Transcranial Doppler Ultrasonography is a monitoring tool for Reversible Cerebral Vasoconstriction Syndrome

Jay H Levin¹, Jorge Benavides², Grayson Baird³, Janet Wilterdink^{1,2}, Shadi Yaghi¹, Brian Silver^{1,2}, Muhib Khan^{1,2}
¹Dept. of Neurology, Alpert Medical School of Brown University Providence, RI, USA, ²Cerebrovascular Laboratory, Rhode Island Hospital Providence, RI, USA, ³Lifespan Biostatistics Core Providence, RI, USA

31. Do Sonographic Lenticulate Striatal Vasculopathy and Retinopathy of the Premature Share common Pathogenic Mechanisms?

Paul Maertens, Maria Bramhall
University of South Alabama Dept. of Neurology, Mobile, AL, USA

32. Microembolus detection in cryptogenic stroke: Rationale and design of the MEDICS study

Anthony Noto, Manjunath Markandaya, Boğaçhan Şahin
University of Rochester, Strong Memorial Hospital, Dept. of Neurology Rochester, NY, USA

33. Transcranial Doppler Emboli monitoring artifact due to possible longer than suggested half-life of definity contrast used in echocardiogram

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Allegheny General Hospital, Pittsburgh, PA, USA

34. An fNIRS Study of Phonotactic Elements Contributing to English and Spanish Word Identification

Alejandro Brice, Christina Salnaitis, Molly Quinn, Rachel Gormley, Jacqueline Barrett, Antwon Frazier, Zachary McNiece, Robert Gray, Ana Luna, Briana Attalla, Carlos Barbour, Barbara Marques, Diana Rafailova, Rain Christi, Devin Plant, Ander Baranda
University of South Florida, St. Petersburg, FL, USA

35. Prefrontal Activation During Word Identification for Bilinguals and Monolinguals: An fNIRS Study

Christina L Salnaitis, Alejandro Brice, Molly Quinn, Rachel Barrett, Antwon Frazier, Zachary McNiece, Ana Luna, Briana Attalla, Carlos Barbour, Diana Ravailova, Rain Christi, Devin Plant, Ander Baranda, Aaron Huba, Danica Tan, Alexis Diaz
University of South Florida, St. Petersburg, FL, USA

36. Metabolic changes in the brain of patients with HTLV-1-associated myelopathy/tropical spastic paraparesis

Manuel Schütze¹, Luiz C. F. Romanelli¹, Herika M. M. Vasconcelos¹, Carlos Malamut², Debora M. Miranda¹, Marco A. Romano-Silva¹, Michael Brammer³
¹Universidade Federal de Minas Gerais Belo Horizonte, Brazil, ²Centro de Desenvolvimento da Tecnologia Nuclear Belo Horizonte, Brazil, ³Kings College London / Institute of Psychiatry London, United Kingdom

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