



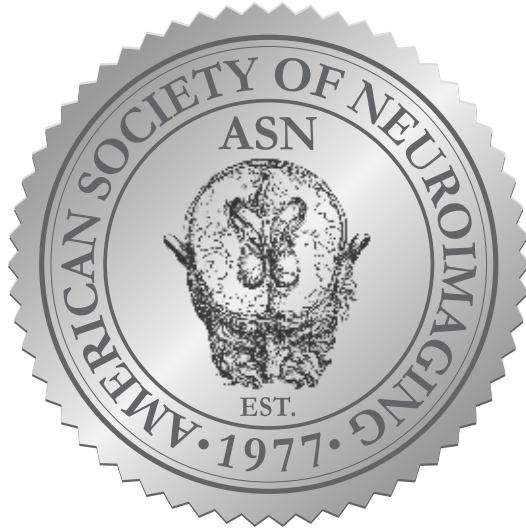
ASN 42ND ANNUAL MEETING



PUERTO RICO

JANUARY 24-26, 2019

WYNDHAM GRAND RIO MAR BEACH RESORT & SPA
RIO GRANDE, PUERTO RICO



42ND ANNUAL MEETING OF THE AMERICAN SOCIETY OF NEUROIMAGING

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CME INFORMATION

Target Audience. This activity is designed to meet the needs of neurologists, neurosurgeons, neuroradiologists and other neuroscientists.

Method Of Participation.

Statements of credit will be awarded based on the participant's attendance. A statement of credit will be available upon completion of an online evaluation/claimed credit form available at: akhcme.com/akhcme/pages/asn

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ANNUAL MEETING OBJECTIVES

- Recognize anatomic landmarks using neurosonography and be familiar with age dependent variations
- Recognize pathologic findings requiring intervention
- Understand the limitations of neurosonography and decide how best to incorporate neurosonography into clinical practice
- Apply knowledge of neuroimaging to formulate a focused differential diagnosis
- Review important imaging concepts of dementia and neurooncology
- Understand the challenges of imaging in the novel environment of a mobile stroke unit
- Define waveform and vessel identification
- Define examinations protocols
- Define abnormal waveforms
- Competence: Achieve experience in understanding and applying contemporary carotid Duplex and TCD protocols in common neurovascular disorders, i.e., stroke, extra- and intracranial stenosis, subarachnoid hemorrhage, and traumatic brain injury.
- Performance: Have acquired new knowledge for carotid Duplex and TCD utilization in critical care and during cardiovascular procedures
- Outcomes: Improved patient management strategies and outcome due to utilization of carotid duplex and TCD testing during different clinical pathways
- Describe the role of neuroimaging in the training and practice of Neurology
- List some examples of how neurologists can enhance their patients' outcomes by neuroimaging
- Recognize how neuroimaging training is key to the future of Neuroimaging
- Describe the significance of neuroimaging in the management of patients presenting with acute stroke
- Identify various neuroimaging modalities in the management of patients with acute stroke
- Discuss current endovascular management of patients with acute stroke
- Describe the use and application of CT perfusion studies in the evaluation and management of acute ischemic stroke as it pertains to the selection of patients for acute reperfusion therapies.

- Discuss the value of brain MRI in guiding emergent reperfusion therapies for acute ischemic stroke.
- Describe the early ischemic changes seen in acute ischemic stroke and discuss the application of ASPECTS score for patient selection for acute reperfusion therapies, intravenous and endovascular.
- Discuss the value of CT angiography in the management of acute ischemic stroke and elucidate the role of collateral assessment in selection of patients for acute reperfusion therapies.
- Discuss the role of neuroimaging technologies for management of acute stroke in the mobile stroke unit.
- Explain when to image a headache
- Understand the use of different neuroimaging modalities on headache patients
- Evaluate Neuroimaging findings
- Evaluate key neuroimaging features of MS
- Review the role of conventional MRI in MS diagnosis
- Discuss neuroimaging of NMOSD, ADEM and other common MS mimics.
- Review utilization practices for TCD among pediatric neurologists, intensivists and researchers who practice and conduct research in pediatric neurocritical care.
- Review conditions for which TCD is currently being used in children in clinical practice and research.
- Propose future directions intended to better understand the potential clinical impact of TCD in pediatric neurocritical care.
- Apply knowledge of neuroanatomy to formulate a focused differential diagnosis
- Review important imaging concepts of infections involving the CNS
- Identify novel imaging techniques being introduced to clinical practice
- Acquire knowledge and skills regarding the use of functional neuroimaging
- Identify various memory disorders using functional neuroimaging
- Apply functional neuroimaging in the diagnosis of memory disorders in patients
- List three symptoms of concussion/TBI
- Outline two characteristic symptoms of CTE
- Describe changes on TCD after concussion/TBI
- Discuss different cases of post-traumatic epilepsy and understand the pathophysiology

PROGRAM AT-A-GLANCE

THURSDAY, JANUARY 24, 2019

9:00 am – 10:30 am (Parallel Sessions)	Pediatric Neurosonographic Imaging - Paul Maertens, MD
	Neuroimaging of MS and Mimics - Konstantin Balashov, MD, PhD and Viviana Orozco Leon, MD
10:30 – Noon (Parallel Sessions)	Transcranial Doppler Ultrasound in Pediatric Neurocritical Care: Clinical and Research Applications - Brian Appavu, MD and Peter Kalina, MD
	Neuroimaging of Hurricane Headaches - Juan Moreria Vidal, MD
12:00 pm - 1:15 pm	Resident/Fellow/Trainee/Student Lunch Workshop: Incorporating Neuroimaging into the Clinical Practice - Ryan Hakimi, MS, DO
12:00 pm - 1:15 pm	Lunch (on your own)
1:30 pm - 3:30 pm	Neuroimaging Update on Concussion - Jennifer McVige, MD, Chuck Tegeler, MD, and Javier Chapa Dávila, MD
3:30 pm – 4:00 pm	Coffee Break
4:00 pm - 5:30 pm	Neuroimaging of Acute Stroke - David Liebeskind, MD, Gyan Kumar, MD, and Ulises Nobo, MD
5:45 pm - 6:45 pm	Opening Keynote Address: Neuroimaging: Serving Our Patients Integrally - Joseph Masdeu, MD, PhD
7:00 pm – 9:00 pm	Welcome Reception: Exhibits & Posters

FRIDAY, JANUARY 25, 2019

7:30 am - 9:00 am	Breakfast Course: Neuroimaging in Clinical Practice 2019: From Training to Advanced Practice - Ryan Hakimi, MS, DO, and Emmaculate Fields, APRN-CNP
9:00 am - 10:30 am (Parallel Sessions)	Basic Neurosonology - Zsolt Garami, MD, RPVI
	Fundamentals of MRI - Marc Malkoff, MD and John Bertelson, MD
10:30 am – 11:00 am	Coffee Break

11:00 am - 1:00 pm (Parallel Sessions)	Basic Neurosonology - Zsolt Garami, MD, RPVI
	Fundamentals of MRI - Marc Malkoff, MD and John Bertelson, MD
1:30 pm - 5:30 pm	Free time to Explore! - Group Excursions
6:30 pm	Student Reception Sponsored by DENT Neurologic Institute
7:00 pm	Oceanside Party Sponsored by DENT Neurologic Institute

SATURDAY, JANUARY 26, 2019

8:00 am - 9:00 am	Breakfast Course: Applied Ultrasound Physics - Andrei Alexandrov, MD, RVT
9:00 am - 10:30 am (Parallel Sessions)	Advanced Neurosonology - Alexander Razumovsky, PhD, FAHA
	Advanced MRI - Marc Malkoff, MD and John Bertelson, MD
10:30 am – 11:00 am	Coffee Break
11:00 am - 1:00 pm (Parallel Sessions)	Advanced Neurosonology - Alexander Razumovsky, PhD, FAHA
	Advanced MRI - Marc Malkoff, MD and John Bertelson, MD
1:00 pm -2:00 pm	Lunch & Annual Business Meeting
2:00 pm - 3:00 pm	Future of Imaging in the US and PR Debate Moderator: David Liebeskind, MD. Panelists: Hon. Rafael Rodriguez Mercado, MD, Puerto Rico Minister of Health, Laszlo Mechtler, MD, FAAN, FASN, and Carlos Luciano-Roman, MD
3:00 pm – 3:30 pm	Coffee Break
3:30 pm - 5:00 pm	Latest Advances in Neuroimaging: Interactive case sessions - Madhureeta Achari, MD
5:30 pm - 7:00 pm	OPTIONAL WORKSHOP: Ultrasound Hands-On Workshop for Beginners and Advanced Practitioners with Demonstrations and Case Reviews
7:30 pm - close	Caribbean Dinner (Separate Event Ticket)

ASN 2019 ANNUAL MEETING FACULTY

Madhureeta Achari, MD

Baylor St. Luke's Medical Center
Houston, Texas

Bela Ajtai, MD, PhD

Dent Neurologic Institute
Amhurst, New York

Andrei Alexandrov, MD, RVT

The University of Tennessee
Health Science Center
Memphis, Tennessee

Anne Alexandrov, PhD, RN, CCRN

Department of Neurology, University
of Tennessee Health Science Center
Memphis, Tennessee

Brian Appavu, MD

Barrow Neurological Institute at
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of Arizona College of Medicine
Phoenix, Arizona

Konstantin Balashov, MD, PhD, FAAN

Rutgers-Robert Wood Johnson
Medical School
Township, New Jersey

John Bertelson, MD

University of Texas –
Austin Dell Medical School
Austin, Texas

Sheldon Boston, RVT, RDMS

Houston Methodist Hospital
Houston, Texas

Pat Capone, MD, PhD

Winchester Neurological Consultants
Winchester, Virginia

Javier Chapa Dávila, MD

Private Practice
Guaynabo, Puerto Rico

Brett Cucchiara, MD

Department of Neurology,
University of Pennsylvania
Philadelphia, Pennsylvania

Emmaculate Fields, APRN-CNP

University of Oklahoma
Health Sciences Center
Oklahoma City, Oklahoma

Zsolt Garami, MD, RPVI

The Methodist Hospital
Houston, Texas

Camilo Gomez, MD, MBA

Loyola University Medical Center –
Stritch School of Medicine
Chicago, Illinois

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Greenville Health System
Greenville, South Carolina

Josephine Huang, MD

Department of Neurology, Mayo Clinic
Jacksonville, Florida

Peter Kalina, MD

Mayo Clinic College of Medicine
Rochester, Minnesota

Gregory Kapinos, MD, MS, FASN

North Shore-LIJ Health System
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Rakesh Khatri, MD

Texas Tech University
Health Sciences Center
Lubbock, Texas

Gyanendra Kumar, MD

Mayo Clinic
Phoenix, Arizona

Kerri LaRovere, MD

Boston Children's Hospital
Boston, Massachusetts

Karen Lidsky, MD, MHA

University of Florida
College of Medicine
Jacksonville, Florida

David Liebeskind, MD

UCLA Department of Neurology
Los Angeles, California

Carlos Luciano-Roman, MD

UPR Medical Sciences, Neurology
San Juan, Puerto Rico

Paul Maertens, MD

University of South Alabama
Mobile, Alabama

Marc Malkoff, MD

University of Tennessee
Knoxville, Tennessee

Joseph Masdeu, MD, PhD

Weill Medical College of
Cornell University
New York, New York

Jennifer McVige, MD

Dent Neurologic Institute
Amherst, New York

Laszlo Mechtler, MD, FAAN, FASN

Dent Neurologic Institute
Buffalo, New York

Darryl Miles, MD

University of Texas Southwestern
Medical Center
Austin, Texas

Juan Moreria Vidal, MD

Hospital del Maestro
San Juan, Puerto Rico

Ulises Nobo, MD

HIMA San Pablo Caguas Hospital
San Pablo, Puerto Rico

Nicole O'Brien, MD

Ohio State University
College of Medicine
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Viviana Orozco Leon, MD

VA Caribbean Healthcare System
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Josie Pena-Gomez, MD

Dent Neurologic Institute
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Alexander Razumovsky, PhD, FAHA

Sentient NeuroCare Services, Inc.
Hunt Valley, Maryland

Gustavo Rodriguez, MD

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Lubbock, Texas

Hon. Rafael Rodriguez Mercado, MD

Puerto Rico Minister of Health
San Juan, Puerto Rico

Karin Reuter-Rice, PhD

Duke University
Durham, North Carolina

Paul Schulz, MD

University of Texas
McGovern Medical School
Austin, Texas

Charles Tegeler, MD

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

Steven To, RVT, RDMS

The Methodist Hospital
Houston, Texas

John Volpi, MD

The Methodist Hospital
Houston, Texas

ASN 2019 ANNUAL MEETING PROGRAM

Thursday, January 24

Pediatric Neurosonographic Imaging

CME: 1.5

9:00 – 10:30 am, Rio Mar 7-8

Course Director: Paul Maertens, MD

Course Description: In infants, neurosonographic imaging is the primary tool available at bedside. This course is offered to review normal anatomic landmarks using neuroimaging through the anterior fontanelle, posterior fontanelle and temporal window. At the end of this course, attendants will be able to identify components of neurologic structures including brainstem, cerebellum, CSF space, cortex, white matter, basal ganglia, thalamus and vascular structures. Some of the artifacts inherent to this technology will be discussed. This course will demonstrate how power Doppler assists the imager in identifying abnormal anatomic structures (brain dysgenesis), echogenic patterns, CSF flow abnormalities or vascular disorders guiding clinicians towards appropriate intervention.

Individual Speaker Schedule:

9:00 - 9:45 am	Normal Brain Imaging Using Neurosonography and Power Doppler - Paul Maertens, MD
9:45 - 10:30 am	Abnormal Neurosonographic Imaging - Paul Maertens, MD

Modalities: Ultrasound and MRI

Neuroimaging of MS and Mimics

CME: 1.5

9:00 – 10:30 am, Rio Mar 6

Course Directors: Konstantin Balashov, MD, PhD, FAAN and Viviana Orozco Leon, MD

Course Description: This course is designated for neurologists and other physicians interested to improve their knowledge and skills in neuroimaging of patients with MS and major MS mimics. In the first part of this course, we are going to review MS pathogenesis and the role of MRI in disease diagnosis and monitoring disease activity. In the second part, we will discuss neuroimaging of common demyelinating disorders of the CNS other than MS. The list of common MS mimics includes but is not limited to NMO, ADEM, Neurosarcoidosis, and Neuroborreliosis.

Individual Speaker Schedule:

9:00 – 9:35 am	Neuroimaging of MS - Konstantin Balashov, MD, PhD, FAAN
9:35 – 9:45 am	Break
9:45 – 10:10 am	Neuroimaging of Classic MS Mimics - Viviana Orozco Leon, MD
10:10 – 10:30 am	Neuroimaging of Rare MS Mimics - Konstantin Balashov, MD, PhD, FAAN

Modality: MRI

Transcranial Doppler Ultrasound in Pediatric Neurocritical Care: Clinical and Research Applications

CME: 1.5

10:30 am – 12: 00 pm, Rio Mar 7-8

Course Directors: Brian Appavu, MD and Peter Kalina, MD

Course Description: Neuromonitoring in critically ill children is still in its infancy. Transcranial Doppler (TCD) ultrasonography has many advantages as a non-invasive, bedside monitor and may be gaining popularity in the pediatric neurocritical care population. In this session, we will review a recent survey about the current utilization of TCD among a group of neurologist, intensivists and researchers who practice pediatric neurocritical care across the United States. Speakers will highlight some of the conditions in which TCD is currently being used in critically children both in clinical practice and research. The speakers will focus on the use of TCD in pediatric moderate to severe traumatic brain injury; cerebral malaria in the Congolese population; traumatic cerebral vasospasm; and emboli monitoring during pediatric cardiac catheterization and mechanical circulatory support with extracorporeal membrane oxygenation.

Individual Speaker Schedule:

10:30 - 10:35 am	Introduction to Course - Peter Kalina, MD
10:35 - 10:45 am	Transcranial Doppler Ultrasound in Pediatric Neurocritical Care – US Survey Results - Kerri LaRovere, MD and Nicole O'Brien, MD
10:45 - 11:05 am	Applications of Transcranial Doppler Ultrasound in Pediatric Traumatic Brain Injury - Brian Appavu, MD and Karin Reuter-Rice, PhD
11:05 - 11:15 am	Application of Transcranial Doppler Ultrasound in Pediatric Central Nervous System Infections - Nicole O'Brien, MD
11:15 - 11:25 am	Application of Transcranial Doppler Ultrasound for Intraoperative and Perioperative Emboli Detection - Kerri LaRovere, MD
11:25 - 11:35 am	Application of Transcranial Doppler Ultrasound in Dural AV Fistulas - Darryl Miles, MD
11:35 - 11:45 am	Application of Transcranial Doppler Ultrasound in aneurysmal Subarachnoid Hemorrhage - Karen Lidsky, MD, MHA
11:45 am - 12:00 pm	Question and Answer Session

*Modalities:*Transcranial Doppler Ultrasound

Neuroimaging of Hurricane Headaches

CME: 1.5

10:30 am – 12: 00 pm, Rio Mar 6

Course Director: Juan Moreira, MD

Course Description: To take a look on basic principles on the Neuroimaging of Headaches. Take a look at the different neuroimaging modalities on the headache field.

Modalities: MRI, MRA , CT , Ultrasound , Brain Spect-Pet scan

Incorporating Neuroimaging Into Clinical Practice

CME: Not Applicable

12:00 – 1:15 PM, Rio Mar 6

Suggested Audience: Residents, Fellows, Trainees, and Students

Course Director: Ryan Hakimi, DO, MS

Course Description: After attending this 60-minute career development course, the participant will be able to:

- Describe pathways to a career in Neuroimaging (fellowship, formal training, informal training, self-learning)
- Describe how your patient care can be improved by being able to read your own images
- Illustrate how ASN can help you in your career development

Neuroimaging Update on Concussion

CME: 2.0

1:30 – 3:30 pm, Rio Mar 6

Course Directors: Jennifer McVige, MD, Chuck Tegeler, MD, and Javier Chapa Dávila, MD

Course Description: Concussion and traumatic brain injury (TBI) affects hundreds of thousands of people each year. Neurologists and neuroimagers must be aware of clinical aspects, how neuroimaging can contribute for the evaluation of such patients, and new directions in treatment for those with persisting symptoms. This session will review clinical aspects of concussion/TBI, and the role for neuroimaging, including TCD. It will also highlight new directions in neuroimaging for CTE, and a new approach to therapy for those with persisting symptoms. Case reviews will offer an opportunity for audience involvement and interaction.

Individual Speaker Schedule:

1:30 - 2:10 pm	TBI/Concussion: Overview, clinical aspects, and evolving role for neuroimaging - Jennifer McVige, MD
2:10 – 2:30 pm	TCD for TBI/Concussion - Alex Razumovsky, PhD, FAHA
2:30 – 2:50 pm	CTE: What's New? - Jennifer McVige, MD
2:50 – 3:10 pm	Innovative Approaches to Treatment for Persisting Symptoms - Charles Tegeler, MD
3:10 – 3:30 pm	TBI/Concussion Case Reviews, Discussion, and Questions

Modalities: MRI, CT, PET, Ultrasound

Neuroimaging of Acute Stroke

CME: 1.5

4:00 – 5:30 pm, Rio Mar 6

Course Directors: David Liebeskind, MD, Gyan Kumar, MD, and Ulises Nobo, MD

Course Description: Four lectures will be conducted to elucidate the value of various imaging modalities (non-contrast head CT, CT angiography, CT perfusion, and MRI of brain) in acute ischemic stroke diagnosis and management, in light of new guidelines for endovascular stroke therapies released in 2018

1. CT perfusion in the first 24 hours after stroke symptom onset: a continuum of care and information
2. Is MRI brain helpful in guiding acute stroke therapies?
3. CT Angiography in acute stroke? Do collaterals count?
4. The value of non-contrast head CT in acute ischemic stroke.
5. Discussion on neuroimaging technologies for the emergent management of acute stroke in the mobile stroke unit.

Individual Speaker Schedule:

4:00 – 4:20 pm	CT Perfusion in the First 24 Hours after Stroke Symptom Onset: A continuum of care and information - Josephine Huang, MD
4:20 – 4:40 pm	Is MRI Brain Helpful in Guiding Acute Stroke Therapies? - Brett Cucchiara, MD
4:40 – 5:00 pm	The Value of Non-Contrast Head CT in Acute Ischemic Stroke - Gyan Kumar, MD
5:00 -5:20 pm	CT Angiography in Acute Stroke? Do Collaterals Count? - David Liebeskind, MD
5:20 – 5:30 pm	Neuroimaging Technologies for Emergent Management of Acute Stroke in Mobile Stroke Unit - Discussion moderated by Anne Alexandrov, PhD, RN, CCRN

Modalities: CT, CT angiography, CT perfusion, MRI, and MR perfusion

**Opening Keynote Address:
Neuroimaging: Serving our patients integrally**

CME: 1.0

5:45 – 6:45 pm, Rio Mar 6

Keynote Speaker: Joseph Masdeu, MD, PhD

Keynote Presentation: Neuroimaging faces great opportunities but also growing pains. The field has been restricted by forces that have little to do with science or patient care. Collaboration among medical specialties and respect for each other are essential as we try to serve out patients with the increasingly more powerful tools of Neuroimaging. Neurologists need to be knowledgeable about the forces shaping the subspecialty.

Modalities: MRI and PET

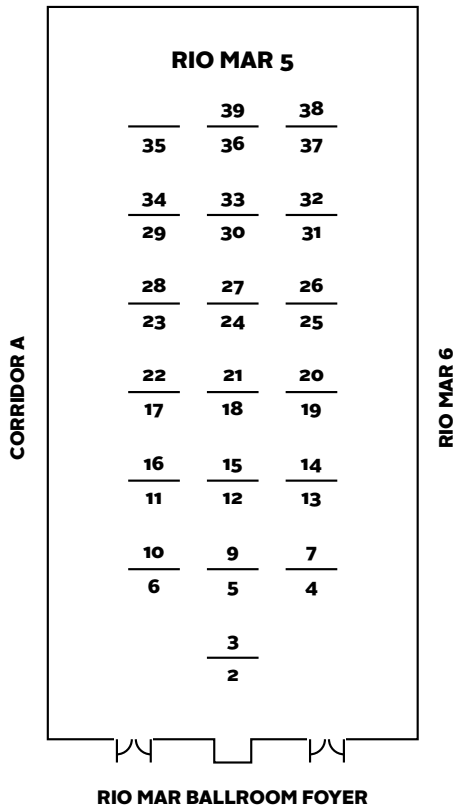
Welcome Reception: Exhibits and Posters

CME: Not Applicable

7:00 – 9:00 pm, Rio Mar 5

Posters listing on page 20

**POSTER
MAP**



Friday, January 25

Breakfast Course:

Neuroimaging in Clinical Practice 2019: From Training to Advanced Practice

CME: 1.5

7:30 - 9:00 am, Rio Mar 6

Course Directors: Ryan Hakimi, DO, MS and Emmaculate Fields, APRN-CNP

Course Description: This course is intended for providers in training as well as the Advanced practice providers (Physician Assistants, Nurse Practitioners and Clinical Nurse Specialists) practicing in both outpatient and acute care settings to be knowledgeable in interpreting neuro-imaging for accurate diagnosis and timely interventions to ensure better patient outcomes.

Individual Speaker Schedule:

7:30 – 7:40 am	Importance of Neuroimaging for Trainee & Advanced Practice Providers - Ryan Hakimi, DO, MS and Emmaculate Fields, APRN-CNP
7:40 - 8:25 am	Neuroimaging Evaluation in Acute Ischemic Stroke Patient Triage - Rakesh Khatri, MD and Gustavo Rodriguez, MD
8:25 - 8:55 am	Current Endovascular Stroke Treatment: Tips, tricks, and treats - Camilo Gomez, MD, MBA
8:45 - 9:00 am	Panel Discussion - Ryan Hakimi, DO, MS, Rakesh Khatri, MD, Gustavo Rodriguez, MD, and Camilo Gomez, MD, MBA

Modalities: MR, CT, TCD , and Angiography

Basic Neurosonology

CME: 3.5

9:00 am - 1:00 pm, Rio Mar 7-8

Course Director: Zsolt Garami, MD, RPVI

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. Course will provide review of insonation techniques and neurosonology protocols. This workshop is designed to teach abnormal waveform recognition and basic knowledge for practical aspects of the neurosonology examinations.

Individual Speaker Schedule:

9:00 - 9:20 am	Waveform Recognition - Andrei Alexandrov, MD, RVT
9:20 - 9:40 am	Transcranial Doppler Protocol - Steven To, RVT, RDMS
9:40 - 10:00 am	Carotid Protocol - Sheldon Boston, RVT, RDMS
10:00 - 10:20 am	Carotid Plaque Caratherization and IMT - Zsolt Garami, MD, RPVI
10:20 - 10:40 am	TCD and Carotid Interpretation - Andrei Alexandrov, MD, RVT
10:40 - 11:00	Coffee Break
11:00 -11:20 am	Embolus Detection and Monitoring - John Volpi, MD
11:20 - 11:40am	PFO - TCD Bubble Test - John Volpi, MD
11:40 - 12:00 pm	Intraoperative Monitoring - Zsolt Garami, MD, RPVI
12:00 - 12:15	Subclavian vs. Vertebral Steal - Zsolt Garami, MD, RPVI
12:15 -12:30 pm	IAC Requirements for Reports / Interesting Cases - Zsolt Garami, MD, RPVI
12:30 - 1:00 pm	Q & A

Modalities: Ultrasound and TCD Carotid Duplex

Fundamentals of MRI

CME: 3.5

9:00 am - 1:00 pm, Rio Mar 6

Course Directors: Marc Malkoff, MD and John Bertelson, MD

Course Description: This course is intended to review a sample of fundamental imaging concepts which are important to practicing neurologists, advanced practice providers, and trainees. Experienced neuroimagers and neuroradiologists will speak on subjects related to neuroanatomy, imaging physics, and neuropathology.

Individual Speaker Schedule:

9:00 - 9:45 am	MR Imaging of the Orbits: Anatomy and pathology - Bela Ajtai, MD, PhD
9:45 - 10:30 am	Imaging of Neuro Infectious Disease - Pat Capone, MD, PhD
10:30 - 11:00	Coffee Break
11:00 am - 12:00 pm	TBD
12:00 - 1:00 pm	TBD

Modalities: MRI and CT

Saturday, January 26

Breakfast Course:

Applied Ultrasound Physics

CME: 1.0

8:00 - 9:00 am, Rio Mar 6

Featured Speaker: 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.

Modalities: Ultrasound for Ultrasound Physics

Advanced Neurosonology

CME: 3.5

9:00 - 1:00 pm, Rio Mar 7-8

Course Director: Alexander Razumovsky, PhD

Course Description: Course objective will be to provide a comprehensive update on carotid duplex and TCD clinical applications in the critical care setting, including acute ischemic stroke, subarachnoid hemorrhage and traumatic brain injury. New promising TCD clinical utilization for patients after concussion will be presented. An internationally renowned faculty of leaders in the field of Neurosonology will be assembled to provide the latest in retrospective areas of expertise. This will be accomplished via didactic lectures but will be enhanced by ample time for faculty panel discussions to provide interaction with the audience.

Individual Speaker Schedule:

9:00 – 9:30 am	Carotid Ultrasound and its Clinical Applications - Charles Tegeler, MD
9:30- 10:00 am	Neurosonology Role for Patients with CVD and Acute Stroke - Alexander Razumovsky, PhD
10:00 – 10:30 am	Neurosonology Role for Patients with Acute Ischemic Stroke - Andrei Alexandrov, MD, PhD
10:30 – 11:00	Coffee Break
11:00 - 11:30 am	TCD: Critical Tool in Critical Care - Alexander Razumovsky, PhD
11:30 am – 12:00 pm	Intracranial Pressure Management with TCD - Gregory Kapinos, MD, FASN
12:00 -12:30 pm	Current Opinion and Use of Transcranial Doppler Ultrasonography in Traumatic Brain Injury in the Pediatric Intensive Care Unit - Kerri LaRovere, MD
12:30 – 1:00 pm	Ancillary Ultrasound in Brain Death Confirmation in Neonates and Infants - Paul Maertens, MD

Modality: Ultrasound

Advanced MRI

CME: 3.5

9:00 - 1:00 pm, Rio Mar 6

Course Directors: Marc Malkoff, MD and John Bertelson, MD

Course Description: This course is intended to review a sample of advanced imaging concepts which are important to practicing neurologists, advanced practice providers, and trainees. Experienced neuroimagers and neuroradiologists will speak on subjects related to neuroanatomy, imaging physics, and neuropathology

Individual Speaker Schedule:

9:00 – 9:45 am	Imaging on a Mobile Stroke Unit - Marc Malkoff, MD
9:45 – 10:30 am	Interesting Cases - Marc Malkoff, MD, and John Bertelson, MD, and Josie Pena-Gomez, MD
10:30 – 11:00	Coffee Break
11:00 am -12:00 pm	MRI Imaging of Dementia - Joseph Masdeu, MD, PhD
12:00 - 1:00 pm	Neuro-oncology - Laszlo Mechtler, MD, FAAN, FASN

Modalities: MRI, CT, Ultrasound

Future of Imaging in the US and PR - Debate

CME: 1.0

2:00 pm - 3:00 pm, Rio Mar 6

Moderator: David Liebeskind, MD

Course Description: This course will address the Future of Imaging in the United States and Puerto Rico via an interactive debate moderated by ASN President, Dr. David Liebeskind. Neuroimagers will learn about the pros and cons of currently available imaging modalities in routine care of the patient with neurological disorders. Evolving modalities and new applications will be considered, debating the merits and drawbacks of different diagnostic strategies.

Panelists: Hon. Rafael Rodriguez Mercado, MD, Laszlo Mechtler, MD, FAAN, FANA, FASN, Carlos Luciano-Roman, MD

Modalities: MRI, CT, Ultrasound, PET

Latest Advances in Neuroimaging: Interactive Case Sessions

CME: 1.5

3:30 pm - 5:00 pm, Rio Mar 6

Course Director: Madhureeta Achari, MD

Course Description: This course will discuss the latest advances in functional imaging of the brain in the setting of memory disorders. MRI and CT PET using amyloid/tau and other tracers will be presented. The data contributed to our understanding of these disorders by imaging amyloid/tau may change the way we think about our diagnostic possibilities. The format will be clinical case presentations along with a review of imaging. Resident case presentations will be made. A panel discussion will take place for questions and discussion.

Individual Speaker Schedule:

3:30 -3:35 pm	Introduction - Madhureeta Achari, MD
3:35 - 4:45 pm	Functional Imaging in Memory Disorders - Joseph Masdeu, MD and Paul Schulz, MD
4:45 -5:00 pm	Resident Case Presentation and Panel Discussion - Joseph Masdeu, MD and Paul Schulz, MD

Modalities: MRI, CT, CT PET, Amyloi/Tau Imaging, and Nuclear Medicine

OPTIONAL WORKSHOP:

Ultrasound Hands-On Workshop for Beginners and Advanced Practitioners with Demonstrations and Case Reviews

CME: 1.5

5:30 pm - 7:00 pm, Caribbean Ballroom I

Workshop Directors: Andrei Alexandrov, MD and Zsolt Garami, MD, RPVI*Workshop Faculty:* John Bennett, PhD; Sheldon Boston, RVT, RDMS; Alexander Razumovsky, PhD, FAHA; Charles Tegeler MD; and Steven To, RVT, RDMS

Workshop 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.

Modalities: Ultrasound

ABSTRACT INDEX

Poster 2: Airhead: A Rare Case of Spontaneous Non-Traumatic Pneumocephalus

Christopher Zust¹, Nicole Hogan¹, Julian Dudaz, James Selph¹
¹Palmetto Health/Univ. of South Carolina Neurology, Columbia, USA. ²Univ. of San Diego, San Diego, USA

Poster 3: Imaging of Pediatric Neurovascular Lesions

Peter Kalina
Mayo Clinic, Rochester, USA

Poster 4: Early Amplitude-integrated EEG Monitoring 6 h After Birth Predicts Long-term Neurodevelopment of Asphyxiated Late Preterm Infants

Chunming Jiang, Yi-Hua Yang, Li-Qiong Chen, Xiang-Hua Shuai, Hui Lu, Jun-Hua Xiang, Zhan-Li Liu, Da-Rong Zhu, Xian-Mei Huang
Hangzhou First People's Hospital, Hangzhou, China

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Peter Kalina
Mayo Clinic, Rochester, USA

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Carmel Armon^{1,2}, Jochay Wainstein^{1,2}, Aviv Gour^{1,2}, Ronen Levite^{1,2}, Avigail Bartal^{1,2}, Angela Kriboushay^{1,2}, Gilad Kenan^{1,2}, Fikri Khiri^{1,2}, Evelina Shevtzov^{1,2}, Rina Aroesty², Sarah Bohnkar², Sigal Tal^{1,2}, Eduard Ilgiyaev^{1,2}, Alex Blatt^{1,2}, Zoya Haitov^{1,2}, Samuel Bar-Hayim^{1,2}, Itzhak Kimiagar^{1,2}
¹Tel Aviv Univ. Sackler School of Medicine, Tel Aviv, Israel. ²Yitzhak Shamir (Assaf Harofeh) Medical Center, Zerifin, Israel

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**Resident Travel Award Recipient*
Hui Zhang¹, Fei Wu², Chun Yu², Haiyan Tang², Wenjie Cao², Qiang Dong³
¹Dept. of Neurology, Huashan Hospital, Fudan Univ., Shanghai, China. ²Dept. of Neurology, Huashan Hospital, Fudan Univ., Shanghai, China. ³Dept. of Neurology, Huashan Hospital, Fudan Univ., Shanghai, China; State Key Laboratory of Medical Neurobiology, Fudan Univ., Shanghai, China

Poster 9: Radiologic Errors in Detection of Cerebral Venous Thrombosis

Duško Kozić
Univ. of Novi Sad Faculty of Medicine, Novi Sad, Serbia

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**Oldendorf Award Recipient*
Elanagan Nagarajan, Brandi French, Pradeep Bollu, Ahmir Ashif, Adnan Qureshi
Univ. of Missouri, Columbia, USA

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Elanagan Nagarajan, Anudeep Yelam, Pradeep Bollu
Univ. of Missouri, Columbia, USA

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Sonia Caraballo-Cartagena¹, Luis García-Irizarry², Eduardo Labat-Alvarez², David Blas-Boria¹
¹Univ. of Puerto Rico, School of Medicine, Dept. of Neurology, San Juan, Puerto Rico. ²Univ. of Puerto Rico, School of Medicine, Dept. of Radiology, San Juan, Puerto Rico

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Jennifer Fruin, [Sneha Jacob](#), Gyanendra Kumar
Mayo Clinic, Phoenix, USA

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[Ivy Nguyen](#), Rene Colorado, Karl Meisel
Univ. of California, San Francisco, San Francisco, USA

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[Andrei Alexandrov](#)¹, Deepak Sharma², Kurt Sansom², Alberto Alisedaz, Daniel Leotta², Mark Anderson³, R. Eugene Zierler², Florence Sheehan³
¹Univ. of Tennessee, Memphis, USA. ²Univ. of Washington, Seattle, USA. ³Sheehan Medical LLC, Mercer Island, USA

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JFK medical Center, Edison, USA

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Wake Forest Baptist Medical Center, Winston-Salem, USA

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Allegheny General Hospital, West Penn Allegheny Health Consortium, Pittsburgh, USA

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¹Univ. of South Carolina-Greenville Health System, Greenville, USA. ²Greenville Health System, Greenville, USA

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*McKinney Award Recipient
[Anna Palmieri](#)¹, Filippo Farina¹, Caterina Kulyk¹, Alessio Pieroni¹, Federica Viaro¹, Giacomo Cester², Francesco Causin², Renzo Manara², Claudio Baracchini¹
¹Stroke Unit and Neurosonology Laboratory, Dept. of Neuroscience, Univ. of Padua School of Medicine, Padua, Italy, ²Neuroradiology Unit, Univ. of Padua School of Medicine, Padua, Italy

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¹Hamad General Hospital, Doha, Qatar. ²Univ. of Alberta, Alberta, Canada. ³Univ. of Alberta, Alberta, Qatar

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Madhureeta Achari¹, Cesar E. Escamilla-Ocañas², Taylor Gist³, Nazaneen Amjadi⁴
¹Univ. of Texas Medical School Houston Dept. of PM &R, Houston, USA. ²Dept. of Neurology, Section of Vascular Neurology and Neurocritical Care Baylor College of Medicine, Houston, USA. ³Houston Methodist, Houston, USA. ⁴Univ. of Texas School of Public Health, Houston, USA

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 Gundersen Health System, La Crosse, USA

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¹Wake Baptist Medical Center, Winston-Salem, USA. ²Univ. of North Carolina, Chapel Hill, USA

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 Wake Baptist Medical Center, Winston-Salem, USA

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 Univ. of South Alabama, Mobile, USA

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Emmaline Fernando¹, Vincent De Guzman², Manuel Mariano¹
¹St. Luke's Medical Center, Quezon City, Philippines. ²St. Luke's Medical Center, Global City, Philippines

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Giannina Krishna Go¹, Manuel Mariano², Erickson Torio¹, Lina Laxamana³, Joven Cuanang³
¹St. Luke's Medical Center- Quezon City, Quezon City, Philippines. ²St. Luke's Medical Center- Quezon City and Global City, Quezon City and Global City, Philippines. ³St. Luke's Medical Center, Quezon City, Philippines

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SUNY Downstate Medical Center,
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Garrett Smith¹, Darin Ftouni², Scott Dellorso³, Adam Polifka⁴, Mehmet Albayram⁵, Teddy Youn²
¹Univ. of Florida College of Medicine (COM), Gainesville, USA. ²Univ. of Florida COM, Dept. of Neurology, Gainesville, USA. ³Baptist Neurology, Inc., Jacksonville, USA. ⁴Univ. of Florida COM, Dept. of Neurosurgery, Gainesville, USA. ⁵Univ. of Florida COM, Dept. of Radiology, Gainesville, USA

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¹Univ. of Missouri, Dept. of Neurology, Columbia, USA. ²Zeenat Qureshi Stroke Inst., St. Cloud, USA. ³Istanbul Univ. Cerrahpasa, Dept. of Neurology, Istanbul, Turkey

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Josie Gomez Pena¹, Niclas Lange¹, Laszlo Mechtler²
¹DENT Neurologic Inst., Buffalo, USA.
²DENT Neurologic Inst., Buffalo

LATE BREAKING ABSTRACTS

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Univ. of Tennessee, Memphis, USA

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UNM, Dept. of Neurosurgery, Albuquerque, USA

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Wayne State Univ., Detroit, USA



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McKinney Award

Anna Palmieri. Cerebral Blood Flow Velocity Monitoring after Endovascular Treatment Tells the Story

The McKinney Award is for the best abstract submitted by a student, resident or fellow that is based in basic or clinical research in Neurosonology.

Resident Travel Awards

Maninder Kaur. Intravenous Alteplase Safety in Stroke Patients with Early Ischemic Changes on CT and Prior Use of Antiplatelet Agents: Getting out of the ENCHANTED Forest

Hui Zhang. Transthoracic Echocardiographic Changes in Cryptogenic Stroke Patients with Patent Foramen Ovale

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*O'Brien, et.al. Fully Automated Transcranial Doppler Ultrasound Insonation of the MCA Using a Five Degree of Freedom. Presented, ESNCH 2018

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