



North American Neuro-Ophthalmology Society

46th Annual Meeting

March 7– March 12, 2020

Omni Amelia Island Plantation • Amelia Island, FL

Saturday, March 7

8:00 am – 12:00 pm

NANOS Board Meeting

2:00 pm – 7:30 pm

Registration/Help Desk

3:00 pm – 4:30 pm

Neuro-Radiology Symposium

Amelia Ballroom

Manu S. Goyal, MD, MSc, Laurie A. Loevner, MD, and Aseem Sharma, MD

This neuroradiology session is designed to provide participants with education and information regarding (1) the imaging appearance and evaluation of cranial nerve anatomy and pathology, (2) identification and selection of imaging modalities and sequences within those modalities and (3) the imaging appearance and evaluation of intracranial venous diseases including those involving the cavernous sinuses.

Upon completion of this session, participants should be able to: (1) review imaging anatomy of the oculomotor cranial nerves (CN III, IV, and VI) from their brainstem origin through the cavernous sinuses and parasellar spaces, and into the orbits (2) discuss the imaging appearance and evaluation of certain cranial nerve involving pathologies (3) review common, uncommon, and novel CT and MRI based sequences used in neuro-ophthalmology (4) discuss the imaging modalities and sequences used to evaluate for intracranial venous diseases, in particular thrombosis and arteriovenous fistulae and (5) discuss the imaging appearance of intracranial venous thrombosis and arteriovenous fistulae.

6:00 pm – 7:30 pm

Opening Reception

Magnolia Garden

All are welcome! Light hors d'oeuvres provided.

Sunday, March 8

6:30 am – 7:30 am

Breakfast

Magnolia Ballroom

6:30 am – 5:30 pm

Registration/Help Desk

7:30 am – 9:30 am

Frank B. Walsh (I)

Amelia Ballroom

This session is designed to present a wide variety of neuro-ophthalmic cases to an audience of physicians with varying neuroscience backgrounds who have a common intellectual interest in the broad range of conditions that impact the human visual pathways and ocular motor systems.

The format is a clinicopathologic conference. Clinical cases will be presented by neuro-ophthalmologists with comments by a neuroradiologist, neuropathologist and other selected experts. Neuroimaging, laboratory and surgical pathology data will help illustrate clinical point. Cases will be discussed from clinical, anatomic, radiologic and pathologic aspects with emphasis on diagnosis, pathophysiology and management. Audience participation is encouraged.

Upon completion of this session, participants should be able to: 1) recognize the varied presentations of neuro-ophthalmic disease 2) correlate the anatomic localization and histopathologic appearance with the clinical presentations 3) use radiologic procedures in diagnosis effectively 4) recognize both the value and limitations of neuropathology and 5) discuss newly described diseases and their connection to neuro-ophthalmology.

9:30 am – 10:00 am	Coffee break	
10:00 am – 12:00 pm	Frank B. Walsh (II)	Amelia Ballroom
12:00 pm – 12:30 pm	International Relations Committee Meeting	
12:00 pm – 12:20 pm	Lunch	Magnolia Ballroom
12:00 pm – 1:30 pm	Fellowship Directors Committee Meeting	
12:20 pm – 2:20 pm	Poster Session I: Clinical Highlights	
12:20 pm – 1:20 pm	Odd Numbered Posters	
1:20 pm – 2:20 pm	Even Numbered Posters	
2:20 pm – 3:00 pm	Business Meeting	Amelia Ballroom
	NANOS’s Strategic Plan will be presented. All NANOS members are encouraged to attend.	
3:00 pm – 5:15 pm	Frank B. Walsh (III)	Amelia Ballroom
5:30 pm – 6:00 pm	Walsh Committee Meeting	
5:45 pm – 6:45 pm	Members-in-Training Reception	
	(This reception is for students, residents, fellows-in-training, NANOS Board of Directors members, Fellowship Directors, Student Clerkship, and Neurology and Ophthalmology Residency Directors)	
6:45 pm – 7:45 pm	YONO Social Hour (this event is not financially supported by NANOS)	

Monday, March 9

6:00 am – 6:45 am	Yoga	
6:30 am – 7:30 am	Breakfast	Magnolia Ballroom
6:30 am – 7:30 am	Breakfast with the Novices	Magnolia Ballroom

Join us in the reserved YONO area at breakfast for table discussions led by senior members and /or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 5:00 pm	Registration/Help Desk	
6:30 am – 7:30 am	NOVEL/Editorial Board/Curriculum Committee Veranda AB Meeting	
7:30 am – 9:30 am	Hot Topics	Amelia Ballroom
	<i>Moderators: Julie Falardeau, MD and Devin Mackay, MD</i>	

This session is designed to provide the audience with a practical, evidence-based discussion on how to manage important clinical scenarios, which are of specific and contemporary interest to the neuro-ophthalmic community. “Hot topics” will be presented by established experts and thought-leaders for the respective conditions.

Upon completion of this session, participants should be able to (1) identify why an empty sella occurs (2) explain how an empty sella influences the management of a patient with or without intracranial hypertension (3) identify a subset of risk factors for anterior ischemic optic neuropathy (4) distinguish various forms of hereditary optic neuropathies (5) identify differences between hereditary optic neuropathies that influence patient education and treatment and (6) describe the role of vascular imaging in the diagnosis, monitoring, and assessment of GCA disease activity and related vascular complications.

7:30 am – 7:35 am	Introduction
7:35 am - 7:55 am	I Have an Empty Sella, What Does This Mean? <i>Susan Mollan, MBChB, FRCOphth</i>
7:55 am – 8:15 am	DOA, Wolfram, Is It All the Same? <i>Nancy Newman, MD</i>
8:15 am – 8:50 am	AION Precipitants Nocturnal Hypotension, <i>Anthony Arnold, MD</i> Obstructive Sleep Apnea, <i>Clare Fraser, FRANZCO</i> PDE5 Inhibitors, <i>Howard Pomeranz, MD, PhD</i> Cataract Surgery, <i>Helen Danesh-Meyer, MD, PhD</i>
8:50 am – 9:10 am	Vessel Imaging for the Diagnosis of Giant Cell Arteritis, <i>François-Xavier Borruat, MD</i>
9:10 am – 9:30 am	Q&A

9:30 am – 10:00 am **Coffee with Exhibitors** **Magnolia Ballroom**
10:00 am – 12:00 pm **Telemedicine and Neuro-Ophthalmology 20/20 in 2020**
Moderators: Melissa W. Ko, MD, FAAN, CPE and Kevin Lai, MD

Telemedicine has been growing as a robust and vital part of clinical medicine in its ability to provide high-quality care to patients. This session will provide up-to-date information regarding the implementation of telemedicine in various clinical settings and specialties, discuss the medicolegal aspects of utilizing telemedicine in clinical practice, explore the financial feasibility of telemedicine, and demonstrate ways telemedicine enhances the care that we can deliver to patients in need of neuro-ophthalmic care.

Upon completion of this session, participants should be able to (1) discuss various methods of telemedicine use (2) recognize how telemedicine fits into neuro-ophthalmology practice (3) detail the process of implementing telemedicine into clinical practice (4) enumerate medicolegal considerations and how to address these concerns and (5) evaluate the financial benefits and costs of incorporating telemedicine into clinical practice

10:00 am – 10:10 am	Telemedicine 20/20 in 2020: How Far Have We Come, Where Are We Headed and How Is It Relevant to Neuro-Ophthalmology? <i>Melissa W. Ko, MD, FAAN, CPE</i>
10:10 am – 10:55 am	Panoramic View of a System-Wide Telemedicine Program at an Academic Medical Center <i>Ingrid Zimmer-Galler, MD</i>
10:55 am – 11:05 am	Teleconsultation in the ED for Neuro-Otology at JHU <i>Dan Gold, DO</i>
11:05 am – 11:20 am	Telemedicine: Does It Pay to Play? Billing, Coding, Reimbursement <i>Ingrid Zimmer-Galler, MD and Kevin Lai, MD</i>

11:20 am – 11:40 am **Neuro-Ophthalmology Digital Consultations: The Stanford Model** *Heather Moss, MD, PhD*
11:40 am – 12:00 pm **Panel Discussion/Q&A**

12:00 pm – 1:00 pm **Lunch break** **Magnolia Garden**
Lunch will be available for purchase in the meeting space. Credit card or room charge only.

12:15 pm – 1:00 pm **Update ABO Certification/Re-certification,** *Jane Bailey, MD, and Lanning Kline, MD*

12:15 pm – 1:00 pm **Update ABPN Certification/Re-certification,** *Yanjun (Judy) Chen, MD, PhD, Christopher Glisson, DO, MS, FAAN and Heather Moss, MD, PhD*

1:00 pm – 2:30 pm **Medicine Beyond Diagnosis: Skills for Handling Challenging Clinical Situations** (organized by the WIN Committee)

2:30 pm – 4:45 pm **Coding and Billing Symposium (advanced registration required)**
Moderators: Mark Mosler, MD and John Pula, MD

This session will feature an introductory lecture on the nuts and bolts of billing as well as hot topics in coding and billing.

Upon completion of this session, participants should be able to (1) recognize how to properly code for different types of clinical encounters (2) describe the differences between levels of coding and (3) interpret medical decision-making tiers to properly define a patient encounter.

2:30 pm – 4:45 pm **Coding and Billing** *Sue Vicchilli, AAO Director, Coding and Reimbursement*

2:30 pm – 4:45 pm **Lonely Planet's Guide to Neuro-Ophthalmology** **Cumberland Ballroom**
Moderators: Clare Fraser, FRANZCO and Susan Mollan, FRCOphth

The International Relations Committee of the North American Neuro-Ophthalmology Society presents an interactive case-based symposium that will discuss neuro-ophthalmology disorders associated with the perils of vacations and world-wide travel. Cases will include post-immunization optic neuritis, traumatic optic neuropathy, food borne toxins and unusual headaches.

Upon completion of this course, participants should be able to: (1) identify vaccine related problems (2) summarize the concepts on traumatic optic neuropathy management options (3) recognize food borne related neuro-ophthalmic conditions and (4) recognize CSF diversion related complications and visual loss.

2:30 pm - 2:52 pm **Pre-Vacation Immunization Triggered Neuro-Ophthalmic Conditions Including Optic Neuritis** *Fayçal Mokhtari, MD*

2:52 pm – 3:14 pm **Holiday Headaches: From Ice-Cream to Caffeine Withdrawal, Holidays Don't Always Mean Less Headache. Highlighting Common Headache**

3:14 pm – 3:36 pm	Disorders and How to Manage Them <i>Alex Sinclair, MRCP, PhD</i>
3:36 pm – 3:58 pm	Holiday Hell: Highlighting Underlying Neuro-Ophthalmic Disorders That May Surface Causing Holiday Mayhem <i>Laura Bonelli, MD</i>
3:58 pm – 4:20 pm	Trauma On Your Travels: An Update On the Latest Thinking About Traumatic Optic Neuropathy <i>Richard Blanch, MD, PhD</i>
4:20 pm – 4:42 pm	Maybe It Was Something I Ate? An Update on Food Borne Neuro-Ophthalmic Conditions <i>Christian Lueck, PhD, FRACP, FRCP(UK), FAAN</i>
4:42 pm – 4:45 pm	Flight level in NA10N - A380, 747, 777..... Does It Matter? <i>Rustum Karanjia, MD, PhD</i> Q&A

5:00 pm – 7:00 pm Scientific Platform Session I Magnolia Ballroom

Tuesday, March 10

6:00 am – 6:45 am	Yoga	
6:30 am – 7:30 am	Breakfast	Magnolia Ballroom
6:30 am – 7:30 am	Breakfast with the Novices	Magnolia Ballroom

Join us in the reserved YONO area at breakfast for table discussions led by senior members and /or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 5:00 pm	Registration/Help Desk	
6:30 am – 7:30 am	JNO Editorial Board Meeting	
7:30 am – 9:30 am	Scientific Platform Session II	Amelia Ballroom
9:30 am - 10:00 am	Coffee with Exhibitors	Magnolia Ballroom
10:00 am – 12:00 pm	Scientific Platform Session III	Amelia Ballroom
12:00 pm – 12:10 pm	JNO Update, <i>Laura Balcer, MD, MSCE</i>	Amelia Ballroom
12:10 pm – 6:00 pm	Afternoon free for activities	
6:00 pm – 6:30 pm	Meet the Legends of Neuro-Ophthalmology	
6:30 pm – 8:30 pm	Poster Session II: Scientific Advancements (heavy hors d'oeuvres buffet included)	

6:30 pm – 7:30 pm	Odd Numbered Posters
7:30 pm – 8:30 pm	Even Numbered Posters

8:30 pm – 9:30 pm Abstract Committee Meeting

Wednesday, March 11

6:30 am – 7:30 am	Breakfast	Magnolia Ballroom
6:30 am – 7:30 am	Breakfast with the Novices	Magnolia Ballroom

Join us in the reserved YONO area at breakfast for table discussions led by senior members and /or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 7:30 am **CME Committee Meeting**
6:30 am – 5:30 pm **Registration/Help Desk**
7:30 am – 9:30 am **Skullbase Disorders and Surgical Approaches** **Amelia Ballroom**
Moderators: M. Tariq Bhatti, MD and Vivek Patel, MD

This series of case presentations will provide the audience with an anatomical perspective and minimally invasive surgical approach to manage common neuro-ophthalmic neurosurgical problems.

Upon completion of this session, participants should be able to (1) demonstrate the important neurosurgical aspects of a superior orbital fissure mass (2) describe the potential surgical pitfalls of a superior orbital fissure mass (3) describe the surgical planning and approach to a chiasmal lesion (4) explain the limitations of particular surgical approaches to the optic chiasm (5) illustrate the neurosurgical insights into the planning and execution of treating a large acute brainstem hematoma (6) discuss the functional anatomic perspective of the vertical rami of the superior longitudinal fasciculus and (7) describe the visual function of the vertical rami of the superior longitudinal fasciculus.

7:30 am – 7:35 am	Welcome and Symposium Overview <i>M. Tariq Bhatti, MD</i>
7:35 am – 8:15 am	“The Invisible Anatomy;” Exo- and Endophytic Neural Network <i>Amin Kassam, MD</i>
8:15 am – 8:35am	Case 1 Superior Orbital Fissure Mass <i>Vivek Patel, MD</i> Surgical Approach <i>Amin Kassam, MD</i> Q&A/Discussion <i>M. Tariq Bhatti, MD and Vivek Patel, MD</i>
8:35 am – 8:55 am	Case 2 Chiasmal Compression <i>M. Tariq Bhatti, MD</i> Surgical Approach <i>Amin Kassam, MD</i> Q&A/Discussion <i>M. Tariq Bhatti, MD and Vivek Patel, MD</i>
8:55 am – 9:15 am	Case 3 Large Acute Brainstem Hematoma <i>Vivek Patel, MD</i> Surgical Approach <i>Amin Kassam, MD</i> Q&A/Discussion <i>M. Tariq Bhatti, MD and Vivek Patel, MD</i>
9:15 am – 9:25 am	New Frontiers: Vertical Rami of the Superior Longitudinal Fasciculus and the White Matter Chassis: A Functional Anatomic Perspective of the Subcortical Neural Network <i>Amin Kassam, MD</i>
9:25 am – 9:30 am	Closing Remarks, Review <i>M. Tariq Bhatti, MD and Vivek Patel, MD</i>
9:30 am – 10:00 am	Coffee with Exhibitors
10:00 am – 11:25 am	2020: What’s New in Low Vision Amelia Ballroom <i>Moderators: Marie D. Acierno, MD and Joseph F. Rizzo III, MD</i>

This session focuses on advancements in neuroscience in visual impairments and will look at neuroplasticity associated with visual impairments and blindness (both ocular and cerebral causes), how blind persons adapt to visual loss, compensatory behaviors related to changes occurring at the level of the brain, virtual environments as a means for blind individuals to interact with non-visual information in a meaningful manner, and explore how technology has offered new therapeutic options for patients with acquired blindness.

Upon completion of this session, participants should be able to (1) describe how blind persons adapt to visual loss (2) describe how compensatory behaviors are related to changes occurring at the level of the brain (3) describe how virtual environments may be used as a means for blind individuals to interact with non-visual information in a meaningful manner and (4) discuss how technology has offered new therapeutic options for patients with acquired blindness.

10:00 am – 10:25 am	Visual Neuro-Rehabilitative Approaches: Rehabilitative Strategies and the Role in How One Develops, Adapts, and Responds to Injury in the Visual System <i>Lotfi B. Merabet, OD, PhD, MPH</i>	
10:25 am – 10:50 am	Virtual Reality: How to Assess Functional Vision Performance in Patients With Neurological Injury <i>Lotfi B. Merabet, OD, PhD, MPH</i>	
10:50 am – 11:05 am	Visual Prosthetics: Enabling Technology to Give Sight to the Visually Impaired <i>Joseph F. Rizzo III, MD</i>	
11:05 am – 11:15 am	Visual Rehabilitation: How Do We Empower Our Visually Impaired Patients? <i>Marie D. Acierno, MD</i>	
11:15 am – 11:25 am	Discussion/Q&A	
11:25 am – 12:00 pm	Jacobson Lecture: Optic Neuritis: Past, Present and Future <i>Speaker: Steven Galetta, MD</i>	Amelia Ballroom
12:00 pm – 12:15 pm	Announcements/NOVEL Updates	Amelia Ballroom
12:00 pm – 12:05 pm	Announcements , <i>Valerie Biousse, MD</i>	
12:05 pm – 12:15 pm	NOVEL Update , <i>Kathleen Digre, MD</i>	
12:15 pm – 1:15 pm	Lunch break Lunch will be available for purchase in the meeting space. Credit card or room charge only.	Magnolia Garden
12:15 pm – 1:45 pm	Research Committee Luncheon	
1:15 pm – 3:15 pm	3D Anatomy <i>Moderators: M. Tariq Bhatti, MD and Vivek Patel, MD</i>	Amelia Ballroom

In this session, specially formatted 3-D atlas images will provide participants with an immersive experience outlining the detailed projections of the human visual system using innovative multi-media technology. The optic nerves, orbital, skull base, and parasellar anatomy will be navigated and described. It will also provide detailed views and relational information regarding the brain parenchyma with specific attention to the central visual pathways. Clinical and surgical correlations will be made throughout.

Upon completion of this session, participants should be able to (1) describe the anatomical relationship between important neuroanatomical structures relevant to vision and visual processing (2) recognize the complex organization of neuroanatomical structures sub-serving visual functions and (3) apply this understanding of anatomy of the visual pathways to clinical practice

1:15 pm – 3:15 pm

3D Anatomy, Amin Kassam, MD

3:30 pm – 5: 15 pm

**Skullbase Surgical Approaches. “Live”
Dissection, Amin Kassam, MD**

Cumberland Ballroom

In this live cadaveric head dissection, Dr. Kassam and his colleagues will locate and define the ocular motor cranial nerves, demonstrate the dorsal-cranial approach to the superior orbital fissure, cavernous sinus and interpeduncular cistern, and detail the post-chiasmatic components of the white matter visual neural networks.

Upon completion of this session, participants should be able to (1) apply the anatomical knowledge gained from the cadaveric head dissection to clinical practice (2) describe the complexities and challenges in approaching the superior orbital fissure, cavernous sinus and interpeduncular cistern and (3) recognize the post-chiasmatic components of the white matter visual neural networks.

6:30 pm – 12:00 am

Banquet

Amelia Ballroom

Join colleagues for a fun, casual evening of socializing, dining and dancing at the NANOS Annual Banquet! This event is complimentary for registered attendees; guests must purchase a ticket.

Thursday, March 12

6:30 am – 7:30 am

Breakfast

Magnolia Ballroom

6:30 am – 7:30 am

Breakfast with the Novices

Magnolia Ballroom

Join us in the reserved YONO area at breakfast for table discussions led by senior members and /or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 12:00 pm

Registration/Help Desk

7:30 am – 9:30 am

**New Treatments in Neuro-Ophthalmology-
2020 Trends**

Amelia Ballroom

Moderators: Brad Katz, MD, PhD and Ahmara Ross, MD, PhD

This session will introduce and review new treatments for common diagnoses in neuro-ophthalmology. Therapeutic entities such as new FDA-approved immunotherapy, neuro-protective drugs and therapies including electrical stimulation, stem cells transplantation, and gene therapy will be discussed. This session will also review existing treatments as well as highlight new therapies on the horizon.

Upon completion of this session, participants should be able to (1) evaluate the most recent developments in the treatment of thyroid eye disease and (2) discuss with patients the latest research

regarding treatments of optic nerve diseases, including genetic treatments, nerve regrowth treatments, and stem cell treatments.

7:30 am – 7:50 am	New Paradigm for the Treatment of Thyroid Eye Disease, <i>Prem Subramanian, MD, PhD</i>
7:50 am – 8:10 am	Neuro-Ophthalmic Consequences of Immune Therapy, <i>Lynn Gordon, MD, PhD</i>
8:10 am – 8:35 am	Optic Nerve Regeneration: the Future (Principles; Explanation of How It Works and Areas of Research Including Electrical Stimulation), <i>Kim Gokoffski, MD, PhD</i>
8:35 am – 9:00 am	Is It Time for Stem Cell Treatment? <i>Y. Joyce Liao, MD, PhD</i>
9:00 am – 9:30 am	Gene Therapy- Evolution and Therapeutic Applications– <i>Patrick Yu-Wai-Man, MD, PhD</i>
9:30 am – 10:00 am	Coffee break
10:00 am – 12:00 pm	Strabismus: Image? Operate? <i>Moderators: Shannon Beres, MD and Paul H. Phillips, MD</i>

Many patients with ocular motility disorders can be diagnosed and treated after a clinical examination with no additional diagnostic testing. Other patients may require additional testing, including neuro-imaging, in order to determine the etiology and appropriate treatment of their strabismus. This case-based symposium will emphasize the important clinical findings that enable the clinician to determine if a patient with strabismus requires neuro-imaging. In addition, surgical options for the treatment of ocular motility disorders that present to neuro-ophthalmologists will be evaluated.

Upon completion of this session, participants should be able to (1) identify clinical symptoms and signs that enable the clinician to determine whether a patient with strabismus requires neuroimaging (2) identify the risks and benefits of various strabismus surgical procedures and (3) identify the risks and benefits of various non-surgical procedures that treat patients with strabismus.

10:00 am – 10:14 am	Child With Crossed Eyes Since Infancy: Do I Image? Do I Operate? <i>Lauren Ditta, MD</i>
10:14 am – 10:28 am	Child With Acquired ET: Do I Image? Do I Operate? <i>Jane Edmond, MD</i>
10:28 am – 10:42 am	Adult With Acquired Diplopia at Distance: Do I Image? Do I Operate? <i>Mitchell Strominger, MD</i>
10:42 am – 10:56 am	Adult With Acquired Vertical Diplopia: Do I Image? Do I Operate? <i>Nicholas Volpe, MD</i>
10:56 am – 11:10 am	Adult With Acquired Oblique Diplopia: Do I Image? Do I Operate? <i>Hilda Capo, MD</i>
11:10 am – 11:24 am	Teenager With Acquired Strabismus: Do I Image? Do I Operate? <i>R. Michael Siatkowski, MD</i>
11:24 am – 11:38 am	Baby With Tonic Downgaze: Do I Image? Do I Operate? <i>Ellen Mitchell</i>
11:38 am – 12:00 pm	Q&A