



CNS

2015 ANNUAL MEETING

Mentorship

Service - Education - Progress



SEPTEMBER 26-30, 2015
NEW ORLEANS, LOUISIANA

PRELIMINARY PROGRAM
Advance Registration Deadline: August 27, 2015



CNS

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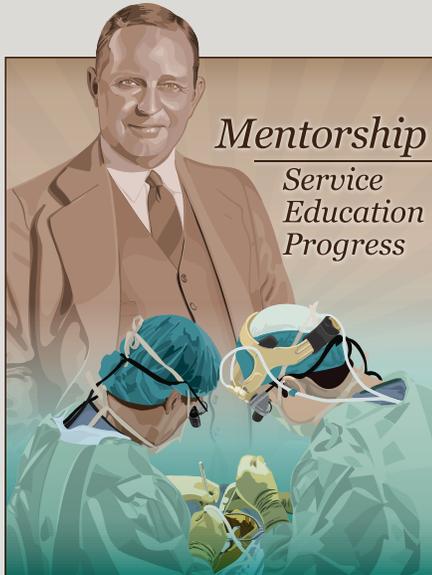
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INDUSTRY ALLIES COUNCIL



President's Message



On behalf of the Congress of Neurological Surgeons Executive Committee, the Scientific Program Committee, and the 2015 CNS Honored Guest Dr. Kim J. Burchiel, I invite you to attend this year's CNS Annual Meeting in New Orleans, Louisiana, September 26–30, 2015.

Our meeting theme, “Mentorship: Service, Education, Progress,” highlights the rich tradition of mentorship within our specialty and celebrates Walter E. Dandy, one of the great mentors and founding fathers of neurosurgery.

The scientific program for this year is sure to provoke discussion. We'll continue to explore controversial and hot-button issues and present the most cutting-edge procedures, approaches, and technologies in the field. Hot Topics highlights include liquid biopsy, laser interstitial thermal therapy for epilepsy (LITT), and cost pressure budgeting under Accountable Care Organizations (ACOs). Controversy debates center on clinical decisions such as the optimal management of single brain metastases and spinal cord stimulation versus re-do surgery for chronic pain. We're also putting you back in the center of the operating room for three challenging live surgical cases via Telemedicine Technology. Other highlights include an outstanding lineup of provocative speakers, including former New York City Mayor Rudy Giuliani, national commentator Juan Williams, and legendary jazz musician Herbie Hancock.

The CNS Annual Meeting is an unparalleled opportunity for scientific exchange and relationship building with thousands of your colleagues from around the world. We are proud to welcome our 2015 international partner organization, the Turkish Neurosurgical Society. We will hear from Professor Yücel Yilmaz, President Emeritus of Kadir Has University in Istanbul, about “Troy, Cradle of Western Civilization.” We will also recognize the formative Turkish neurosurgeon, Dr. M. Gazi Yaşargil, in a tribute 3-D Neurosurgery Session.

It is my great honor and personal pleasure to invite you to join me in this great American city, New Orleans, for the 2015 CNS Annual Meeting. I look forward to seeing you there.



Sincerely,
Nathan R. Selden, MD, PhD
CNS President



The purpose of the 2015 Annual Meeting of the Congress of Neurological Surgeons is to provide continuing medical education for practicing neurosurgeons, neurosurgical residents in training, and postgraduate neurosurgical fellows, as well as advanced practice providers including nurses, physician assistants, and clinical specialists.

Who should attend: Neurological surgeons, neurosurgery nurses, physician assistants, orthopedic surgeons, primary care physicians, gerontologists, radiologists, hospital administrators, oncologists, neurologists, pediatricians, psychiatrists, and infectious disease specialists are welcome and encouraged to attend the 2015 CNS Annual Meeting.

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2015 At-a-Glance

**SAT
26**

8:00 am–5:00 pm	Symposium 01: Neurovascular Update: Evidence-Based Guidelines and Paradigm Shifts in Ischemic and Hemorrhagic Stroke
8:00 am–4:00 pm	Full Day Practical Courses (PC01–PC02)
8:00–11:30 am	Morning Practical Courses (PC03–PC07)
12:30–4:00 pm	Afternoon Practical Courses (PC08–PC14)
5:00–6:30 pm	International Reception
6:00–8:30 pm	Dinner Seminar (DIN01): New Innovations in Spine Surgery Dinner Seminar (DIN02): Managing Your Practice in a Changing Environment: The Transition from Volume to Value-based Care

**SUN
27**

8:00 am–4:00 pm	Symposium 02: Neurovation (CME is not offered for this symposium)
8:00 am–4:00 pm	Full Day Practical Courses (PC15–PC16)
8:00–11:30 am	Morning Practical Courses (PC17–PC22)
12:30–4:00 pm	Afternoon Practical Courses (PC23–PC29)
1:30–4:00 pm	Choice Abstracts: Spanning the Spectrum of Neurosurgery
4:30–6:30 pm	General Scientific Session I
6:30–8:30 pm	CNS Opening Reception Hilton New Orleans Riverside

**MON
28**

7:00–8:30 am	Section Sessions and Original Science at the CNS
9:00–11:30 am	General Scientific Session II
11:00 am–4:45 pm	Exhibit Hall Open
11:30 am–12:30 pm	Morning Session Break—Visit the Exhibit Hall!
11:45 am–12:15 pm	Live Surgery in the Exhibit Hall
12:30–2:00 pm	Luncheon Seminars (M01–M11)
12:30–2:00 pm	Industry Sponsored Lunch Symposia
2:00–2:30 pm	Afternoon Session Break—Visit the Exhibit Hall!
2:30–4:00 pm	CNS Resident SANS Challenge Preliminary Rounds in the Exhibit Hall
2:30–4:00 pm	Hot Topics 1: Optimal Management for a Single Intracranial Metastasis: Radiation or Surgery?
2:30–4:00 pm	Hot Topics 2: Cervical and Lumbar Adjacent Level Breakdown: Fusion or Not?
2:30–4:00 pm	Controversy Session 1: ICH Management—The Role for Hemispherectomy (Stroke and Trauma)
4:00–4:30 pm	Afternoon Session Break—Visit the Exhibit Hall!
4:30–5:45 pm	Consensus Session I: Guidelines for the Management of Unruptured Intracranial Aneurysms
4:30–5:45 pm	CNS Original Science Program—International Neurosurgical Forum
4:30–5:45 pm	3-D Neurosurgery Session: Techniques to Advance the Safety and Efficacy of Microneurosurgery
7:00–9:30 pm	Dinner Seminar (DIN03): GBM: Are Novel Paradigms Establishing a New Standard?

7:00-8:30 am	Section Sessions and Original Science at the CNS
9:00-11:30 am	General Scientific Session III
11:00 am-4:45 pm	Exhibit Hall Open
11:30 am-12:30 pm	Morning Session Break—Visit the Exhibit Hall!
11:45 am-12:15 pm	Live Surgery in the Exhibit Hall
12:30-2:00 pm	Luncheon Seminars (T12-T21)
12:30-2:00 pm	Industry Sponsored Lunch Symposia
2:00-2:30 pm	Afternoon Session Break—Visit the Exhibit Hall!
2:30-4:00 pm	CNS Resident SANS Challenge Championship Round in the Exhibit Hall
2:30-4:00 pm	Hot Topics 3: Liquid Biopsy: Advancements in Next-generation Personalized Care for Brain Cancer
2:30-4:00 pm	Hot Topics 4: The Role of LITT (Laser-induced Thermal Therapy) in Epilepsy
2:30-4:00 pm	Controversy Session 2: Persistent Pain After Lumbar Laminectomy—SCS vs. Redo Surgery and Timing of Spinal Epidural Abscess
4:00-5:00 pm	Annual Business Meeting
4:00-4:30 pm	Afternoon Session Break—Visit the Exhibit Hall!
4:30-5:45 pm	Consensus Session 2: Cervical Arthrodesis vs. Arthroplasty—To Fuse or Not to Fuse
4:30-5:45 pm	CNS Original Science Program—Neurosurgical Forum
4:30-5:45 pm	3-D Neurosurgery Session: A Tribute to Yasargil: Global Microsurgery in 3-D
5:45-6:45 pm	Resident Recruitment Social
7:00-9:30 pm	Dinner Seminar (DIN04): Surgery vs. Conservative Care for Cervical Myelopathy

7:00-8:00 am	Late Breaking Science
8:00-10:30 am	General Scientific Session IV
10:00 am-1:00 pm	Exhibit Hall Open
10:30-11:30 am	Morning Session Break—Visit the Exhibit Hall!
10:45 am-11:15 pm	Live Surgery in the Exhibit Hall
11:30 am-1:00 pm	Luncheon Seminars (W22-W28)
1:00-2:15 pm	Hot Topics 5: Treatment for Facial Pain (Trigeminal Neuralgia)
1:00-2:15 pm	Hot Topics 6: How to Stay Relevant Between Cost Pressure, Budgets and ACOs—A Stepwise Approach
1:00-2:15 pm	Controversy Session 3: Anticoagulation and Neurosurgery



ARE YOU CONNECTED TO THE CNS? Follow us on Facebook, Twitter, and LinkedIn for the most up-to-date information and meeting updates!

The Exhibit Hall

Bigger and Better than Ever



Breakthrough Technology in Every Subspecialty

The CNS Annual Meeting—recently named one of the 50 Fastest Growing Meetings of 2014 by *Trade Show Executive* magazine—will welcome more than 170 leading medical device and pharmaceutical companies to New Orleans. Make time in your busy Annual Meeting schedule to check out in-booth demonstrations of new technologies, view product features in our Demonstration Theater and Innovations Showcase, or just visit your preferred manufacturers to learn what is new for 2015. Details on all sessions will be available in the Annual Meeting mobile app this summer.

Daily Live Surgical Presentations Have Expanded! Via Telemedicine Technology

Join us Monday through Wednesday and be in the OR with subspecialty experts from around the country, as they perform procedures like endovascular treatment of intracranial aneurysms using the Pipeline Flex Embolization Device and endoscopic retromastoid surgery on our grand Live Surgery stage. Visit cns.org/2015 for breaking updates.

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GROUP

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KARL STORZ – ENDOSCOPE



Industry Sponsored Lunch Symposia

Monday through Wednesday

Enjoy a complimentary lunch, and learn about the latest technological innovations and new approaches from some of our top corporate partners. Sponsored lunch topics and advance registration are available online at cns.org/2015.

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Boston
Scientific

The SANS Challenge is Headed for the Exhibit Hall!

The top neurosurgical residents in the country go head-to-head to showcase their knowledge and claim glory and prizes for their program. Grab a beverage and join us at the Exhibit Hall stage to cheer for your alma mater.

Preliminary Rounds: Monday, 2:30–4:00 pm

Championship Round: Tuesday, 2:30–4:00 pm



Resident Highlights

Residents, take advantage of the many perks offered just for you, from discounted and free courses and seminars to uniquely tailored programs and networking opportunities. To learn more about these and other great resident opportunities, visit cns.org/2015.



Educational Courses

PC15: Simulation-Based Neurosurgical Training

Sunday, Sept. 27, 8:00 am–4:00 pm
(Free for PGY3, PGY4, and PGY5 residents; \$250 refundable deposit required)

PC04: 3-D Surgical Neuroanatomy (Supratentorial)

Saturday, Sept. 26, 8:00–11:30 am

PC10: 3-D Surgical Neuroanatomy (Infratentorial)

Saturday, Sept. 26, 12:30–4:00 pm

HOT TOPICS 6: How to Stay Relevant Between Cost Pressure, Budgets and ACOs—A Stepwise Approach

Business School Lite for Residents—A Neurosurgical Practice Simulator
Wednesday, Sept. 30, 1:00–2:15 pm

Was your abstract accepted for presentation at the Annual Meeting? Check your email or contact the CNS for details on how to claim one complimentary PC ticket!

Luncheon Seminars

Residents receive discounted tickets to all Luncheon Seminars. Don't miss the following luncheons!

M01: Honored Guest Luncheon

Monday, Sept. 28, 12:30–2:30 pm • Complimentary for CNS Resident members

M11: Leadership in Neurosurgery

Monday, Sept. 28, 12:30–2:00 pm • Discounted for CNS Resident members



Sergeant-At-Arms

Sergeant-at-Arms volunteers receive free tickets to courses or seminars by performing simple, yet vital tasks such as collecting tickets. To become a Sergeant-at-Arms volunteer, please indicate as such when registering online or by checking the appropriate box on the registration form. Those interested in volunteering will be contacted starting in June with additional details.

Resident Recruitment Social

Tuesday, Sept. 29, 5:45–6:45 pm

Build relationships and connect with peers, recruiters, and physicians looking to add to their practice at this informal networking event.



Resident SANS Challenge

Preliminary Rounds: Monday, Sept. 28, 2:30–4:00 pm

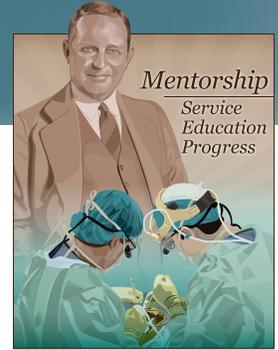
Championship Round: Tuesday, Sept. 29, 2:30–4:00 pm

Residents showcase their knowledge and contend for bragging rights, trophies, and a cash prize. Take the online quiz at sanschallenge.cns.org! The 12 highest-scoring training programs will be invited to send their top two players to live rounds.

Complimentary Housing

Resident members are eligible to apply for complimentary CNS Resident Housing. Limited availability, please visit cns.org/2015 to apply. Application deadline: July 1.

Honored Guest



Kim J. Burchiel, MD, FACS

John Raaf Professor and Chairman
Department of Neurological Surgery
Oregon Health & Science University
Portland, Oregon



Kim Burchiel is the John Raaf Professor and Chairman of the Department of Neurological Surgery at Oregon Health & Science University (OHSU). He also directs the functional and stereotactic neurosurgery fellowship program at OHSU that encompasses the surgical treatment of pain, movement disorders, and epilepsy.

Dr. Burchiel's research interests are concerned with the physiology of nociception and neuropathic pains, including trigeminal neuralgia, the neurosurgical treatment of movement disorders, epilepsy surgery, and image-guided neurosurgery. He has published over 300 peer-reviewed articles and chapters. His published textbooks include *The Surgical Management of Pain, Spinal Cord Injury Pain: Assessment, Mechanisms, Management*, and *Microelectrode Recording in Movement Disorder Surgery*.

Dr. Burchiel has served as chairman of the Section on Pain, president of the American Board of Pain Medicine, president of the Society of University Neurosurgeons, and president of the Western Neurosurgical Society. He has also been a director and vice-chairman of the American Board of Neurological Surgery, secretary and president of the Society of Neurological Surgeons, and member and chairman of the ACGME Residency Review Committee for Neurological Surgery.

Look for Dr. Burchiel during the following sessions:

SUN 27 12:30–4:00 pm
PC13: RRC Next Accreditation System, Milestones, and the Neurosurgery Matrix

MON 28 9:08–9:23 am
Honored Guest Lecture: DBS Targets, Technology and Trials: Two Decades of Progress

12:30–2:00 pm
M01: Honored Guest Luncheon

TUE 29 10:17–10:35 am
Honored Guest Lecture: Trigeminal Neuralgia: New Evidence for Origins and Surgical Treatment

12:30–2:00 pm
T18: Advances in the Management of Trigeminal Neuralgia and Facial Pain

WED 30 9:32–9:52 am
Honored Guest Lecture: Neurosurgical Education: A New Paradigm for Curriculum, Core, and Subspecialty Training

1:30–1:45 pm
Hot Topics 5: Microvascular Decompression for Trigeminal Neuralgia

Featured Speakers

Trevor W. Robbins, PhD

Professor of Cognitive Neuroscience and Experimental Psychology



Trevor Robbins is Professor of Cognitive Neuroscience, and serves as the Chair of Experimental Psychology and Head of the Department at the University of Cambridge. He co-invented the CANTAB computerized neuropsychological battery, which is used in over 500 institutes and clinical centers worldwide. He has published about 700 full papers or chapters, and has co-edited seven books, most recently *Neurobiology of Addiction: New Vistas*; *Decision-making, Affect and Learning*; and *Cognitive Search*.

He stepped down as President of the British Neuroscience Association in 2011 and was made a CBE in the New Year's Honors list of the UK in 2012 "for services to medical research." In 2014 Professor Robbins was a co-recipient of the Brain Prize of the Grete Lundbeck European Brain Research Foundation, the most valuable in neuroscience, awarded to neuroscientists originating from Europe.

SUN
27

4:35-4:58 pm
General Scientific Session I

Yücel Yilmaz, PhD

President Emeritus, Kadir Has University, Istanbul

Yücel Yilmaz is President Emeritus (2002-2010) and Professor Emeritus of Geology at Kadir Has University in Istanbul, Turkey. He studied at Istanbul University and earned his MSc and PhD at University College, University of London.

A member of the Turkish Academy of Sciences, Dr. Yilmaz has served as an executive council member of the Ocean Drilling Project (1989-2002), panel member of the NATO Advanced Study Institute (1980-1985), and board member of TÜBİTAK, the Turkish Scientific Research Council (1981-1985). Among his many career highlights is a joint research project with Cambridge University, the Western Anatolian Partnership (1989-91).

Dr. Yilmaz is a prolific author and lecturer, having authored or co-authored more than 130 research papers and 150 abstracts, and spoken at more than 100 international conferences.

He received the TÜBİTAK (Scientific and Research Council of Turkey) Science Award in 1999.



SUN
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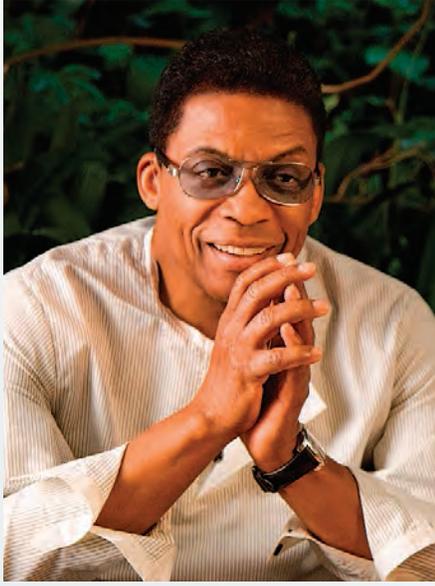
5:05-5:20 pm
General Scientific Session I

Featured Speakers

CNS MICHAEL L. J. APUZZO LECTURER ON CREATIVITY AND INNOVATION

Herbie Hancock

Composer and Musician



Douglas Kirkland

In addition to being recognized as a legendary pianist and composer, Herbie Hancock has been an integral part of every jazz movement since the 1960s.

As a member of the Miles Davis Quintet, he became one of the pioneers of the avant-garde sound. His recordings during the 1970s combined electric jazz with funk and rock sounds in an innovative style that continues to influence contemporary music. The single “Rockit” and the album *Future Shock* marked Hancock’s foray into electronic dance music, and included several chart-topping hits; during the same period he continued to work in an acoustic setting with V.S.O.P., an album that included ex-Miles Davis bandmates Wayne Shorter, Ron Carter, and Tony Williams.

Hancock has received an Academy Award for his *Round Midnight* film score and 14 Grammy Awards, including Album Of The Year for *River: The Joni Letters* and two 2011 Grammy Awards for his recently released globally collaborative CD, *The Imagine Project*. Many of his compositions, including “Cantaloupe Island,” “Maiden Voyage,” “Watermelon Man,” and “Chameleon,” are modern standards that have had a profound effect on all styles of modern music.

The CNS Creativity and Innovation Lecture, originally created to honor former *Neurosurgery*[®] editor Michael L. J. Apuzzo, highlights outstanding individuals in the arts and sciences and invites them to inspire creativity and innovative thinking in neurosurgery.

SUN 27 6:00–6:30 pm
General Scientific Session I

Atul Grover, MD, PhD

Chief Public Policy Officer, Association of American Medical Colleges (AAMC)

Atul Grover leads the public policy, strategy, and outreach efforts that advance the work of the academic medicine community as well as overseeing the AAMC’s health, educational, scientific, and other policies.

Dr. Grover joined the AAMC in 2005 as the associate director for the Center for Workforce Studies where he managed research activity and directed externally funded workforce studies. He became director of government relations and health care affairs in 2007.

Previously, Dr. Grover was a consultant in health care finance and applied economics at the Lewin Group; he also held several positions in the Health Resources and Service Administration National Center for Health Workforce Analysis as a US Public Health Service commissioned corps officer.

He received his MD from George Washington University (GWU) School of Medicine and his PhD in health and public policy from Johns Hopkins University (JHU) Bloomberg School of Public Health. He holds faculty appointments at GWU School of Medicine and JHU Bloomberg School of Public Health.



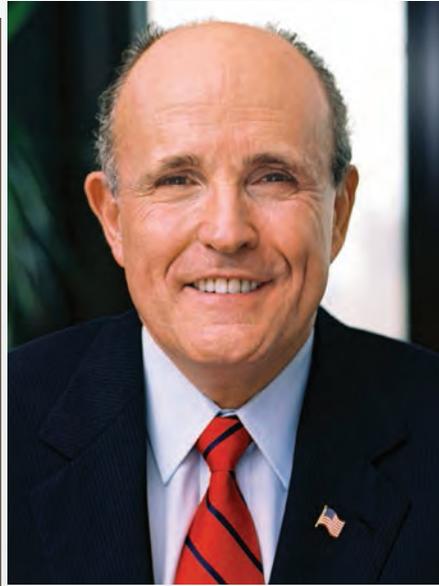
MON 28 9:40–9:55 am
General Scientific Session II

Featured Speakers

WALTER E. DANDY ORATOR

Rudy Giuliani

107th Mayor of New York City (1993-2001)



MON
28 10:18-10:58 am
General Scientific Session II

Rudolph W. Giuliani, the former Mayor of New York City, was born in 1944 in Brooklyn, New York. He attended Manhattan College and New York University Law School. After joining the office of the United States Attorney for the Southern District of New York, Giuliani became the Chief of the Narcotics Unit at age 29.

After the inauguration of Ronald Reagan in 1981, Giuliani was named Associate Attorney General, the third highest position in the US Department of Justice. In 1983, President Reagan appointed Giuliani as the United States Attorney for the Southern District of New York, where he spearheaded successful efforts against organized crime, white-collar criminals, drug dealers, and corrupt elected officials.

In 1993, Rudy Giuliani was elected Mayor of the City of New York. Campaigning on the slogan “One City, One Standard,” he focused on reducing crime, reforming welfare, and improving the quality of life. In 1997, he was re-elected with 57 percent of the vote.

On September 11, 2001, America suffered the worst attack in its history when terrorists crashed planes into the Twin Towers of the World Trade Center. Mayor Giuliani immediately began leading the recovery of the city as it faced its darkest hour, and he was widely lauded for his steady hand during challenging times. He was named “Person of the Year” by *TIME* magazine, knighted by the Queen of England, and former first lady Nancy Reagan presented him with the Ronald Reagan Presidential Freedom Award.

Giuliani founded Giuliani Partners in January 2002 and was recognized in Spring 2002 as “Consultant of the Year” by *Consulting* magazine. He is also a partner in the law firm of Bracewell & Giuliani LLP.

JOHN THOMPSON HISTORY OF MEDICINE LECTURER

Juan Williams

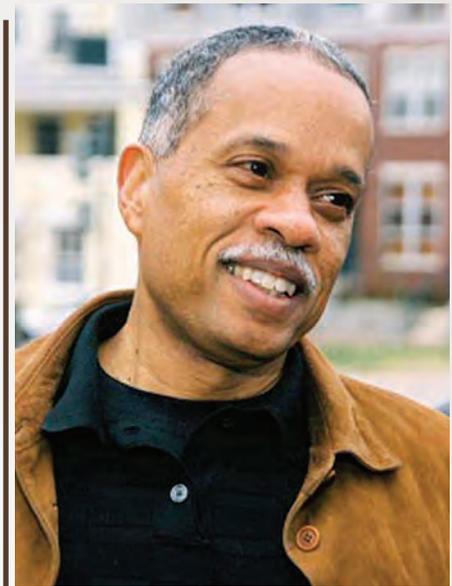
Political Analyst, Journalist

Juan Williams is at the cutting edge of America’s politics and culture. He is a regular panelist on Fox News Sunday and the weekday political newscast Special Report with Bret Baier, as well as a regular substitute host for *The O’Reilly Factor*.

As one of the nation’s most influential journalists, Williams’ inside access with American political leaders gives him a unique and informed voice as an analyst of current events.

Williams joined NPR in 2000 as host of the afternoon talk show *Talk of The Nation*. His daring perspectives on American politics, race, and culture brought the show’s ratings to record heights. In addition, Williams spent 23 years at the *Washington Post* as a political columnist and national correspondent. During his tenure, he covered every major political campaign and has interviewed numerous influential people and presidents—including President Obama and former Presidents George W. Bush, Bill Clinton, George H.W. Bush, and Ronald Reagan.

Williams has received multiple awards for his writing and investigative journalism, including an Emmy Award. He is the author of seven books; the most recent, *Muzzled: The Assault on Honest Debate*, was published in 2011.



TUE
29 11:00-11:30 am
General Scientific Session III

Featured Speakers

Don Walsh, PhD

Retired Naval Officer, Explorer, Oceanographer



Sue Flood

WED
30

9:58-10:29 am
General Scientific Session IV

Captain Don Walsh, PhD, NAE, is a retired naval officer, explorer, and oceanographer. During his 24-year Navy career he served in submarines, including as a commander. As an explorer he has worked in the deep oceans, the Arctic, and the Antarctic. He also was involved with NASA on early Apollo spacecraft imagery of the oceans.

In 1960 he and Jacques Piccard piloted the Navy's Bathyscaphe *Trieste* to the deepest place in the world ocean, the Challenger Deep in the Western Pacific. The depth was nearly seven miles. This record has never been broken.

He first went to the Arctic with the Navy in 1955 and the Antarctic in 1971. Since then he has made a total of nearly 90 polar trips on various ships. In 1973, the Antarctic geographic feature "Walsh Spur" was named for him.

He is a graduate of the U.S. Naval Academy, Texas A&M University, and California State University, San Diego. After Navy retirement he was dean of marine programs and professor of ocean engineering at the University of Southern California.

His numerous awards and recognitions include the highest awards of the Explorers Club (Explorers Medal) and the National Geographic Society (Hubbard Medal) as well as the Legion of Merit, presented at the White House by President Eisenhower. He was elected to the National Academy of Engineering in 2001. Walsh is also honorary president of the Explorers Club and an honorary life member of the American Geographical Society and the Adventurers Club.

In 1976 he founded his present consulting practice, International Maritime Incorporated, and has undertaken projects in 20 nations.



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SANS MOC Board Review Course

March 19-20, 2016 | Orlando, FL

Prepare to pass the ABNS exam with flying colors. Plan to attend the only course that utilizes genuine SANS questions and materials.

NETWORK

LEARN

EXPERIENCE

Experience the
neurosurgical event of the year

When you attend the 2015 CNS Annual Meeting, you have unparalleled opportunities to network with colleagues from across the globe and achieve deep learning on relevant topics from experts in the field. Get hands-on with the latest neurosurgical technology and discover the industry-leading solutions that will move your practice forward.

Network with colleagues and corporate contacts from around the world

- ▷ Digital Poster viewing daily
- ▷ Opening Reception
- ▷ International Reception
- ▷ Resident Recruitment Social

Learn about breakthrough advances and emerging technology

- ▷ Industry-sponsored Lunch Symposia
- ▷ Innovation Showcase
- ▷ Live Surgical Presentations via Telemedicine Technology
- ▷ In-booth individual product demonstrations
- ▷ Demonstration Theater presentations in the exhibit hall

Experience all that the CNS Annual Meeting offers

- ▷ Convenient CNS member services
- ▷ Dinner seminars at top New Orleans restaurants
- ▷ Guest speakers that spark inspiration
- ▷ Innovative education with hands-on courses and flipped classrooms

Don't miss a minute of the
action in New Orleans!

Join the CNS Annual Meeting
at cns.org/2015



CNS

2015 ANNUAL MEETING

NEW ORLEANS
LOUISIANA SEPTEMBER 26-30, 2015

Annual Meeting Leadership

PRESIDENT

Nathan R. Selden, MD, PhD



Dr. Selden is the Campagna Chair of Pediatric Neurosurgery at Oregon Health & Science University (OHSU), neurosurgery residency program director, and vice-chairman of the Department of Neurological Surgery.

He was raised in Oregon and graduated 'with distinction' from Stanford University, winning the Dinkelspiel Commencement Award. As a Marshall Scholar, he earned his doctorate from Cambridge University and rowed for Jesus College. At Harvard Medical School, he won the John Thayer Scholarship. He trained in neurosurgery at the University of Michigan and in pediatric neurosurgery at Northwestern University. His post-doctoral scientific work won the 1998 Academy of Neurological Surgery Award.

In 2006, Dr. Selden performed the world's first transplantation of neural stem cells in a human patient. The NIH, the Oregon Child Health Research Center, and the Cameron Foundation have all funded his scientific work. He has authored over 130 peer-reviewed articles, 80 other print and electronic publications, and has served as an invited lecturer or visiting professor over 140 times.

Dr. Selden is chair of the national group that developed new educational outcomes measures for all US neurosurgery training programs, the ACGME

Milestones. He also founded the *Neurosurgery PGY1 Boot Camps*, which are attended by all incoming US neurosurgery residents. In 2013, he received the ACGME Courage to Teach Award.

Dr. Selden has served on the CNS Executive Committee since 2005, including as Secretary, as Chair of the Scientific Program, Annual Meeting, Education, and Strategic Planning Committees, and as Editor of SANS Lifelong Learning. He is also Chair of the Committee on Resident Education of the Society of Neurological Surgeons.

Dr. Selden is married to his medical school classmate, Dr. Karen Selden, a plastic surgeon. They enjoy skiing, rafting, and hiking in the Oregon Cascades as well as travel at home and abroad with their three children, Ryan, Lauren, and Megan.

PRESIDENT-ELECT

Russell R. Lonser, MD

Dr. Lonser is professor and chair of the Department of Neurological Surgery at Ohio State University. He received his MD from Loma Linda University and received his neurosurgical training at the University of Utah. During his residency, he completed a research fellowship in the Surgical Neurology Branch at the National Institutes of Health (NIH). After completing his residency, he joined the staff of the Surgical Neurology Branch at NIH and became chief of the Surgical Neurology Branch in 2007, before moving to the Ohio State University in 2012.

Dr. Lonser's research interests include development of drug delivery paradigms for the central nervous system pathology, as well as investigation of tumor pathogenesis and biology. His clinical and surgical interests are centered on the treatment of brain, skull base, and spinal cord tumors. Dr. Lonser is an author on over 200 scientific and clinical publications. He received the Tumor Young Investigator Award in 2001 and the Mahaley Clinical Research Award in 2013 from the Section on Tumors. He is a co-inventor on a patent for imaging delivery of therapeutic agents in the nervous system.

A member of the CNS for over 13 years, Dr. Lonser has served as a member-at-large on the CNS Executive Committee, as chair of the Scientific Program and Annual Meeting Committees, and as treasurer. He also served on the Executive Committee for the Section on Tumors. He is actively involved in the mentoring and training of over 40 neurosurgical fellows and is on the editorial boards for *Neurosurgery*, *World Neurosurgery*, and *Journal of Neurosurgery*. He is an academic editor for *PLoS One* and consulting editor for Neurosurgery Clinics of North America.



Dr. Lonser is married to Carolyn, and they have three daughters, Hannah, Sarah, and Alicia.

ANNUAL MEETING CHAIR

Elad I. Levy, MD, MBA, FACS, FAHA



Dr. Levy is Professor and Chair of Neurosurgery at the State University of New York at Buffalo. He is the Medical Director of Neuroendovascular Services at the Gates Vascular Institute (GVI), Co-director of Kaleida Health Stroke Center and Cerebrovascular Surgery, and Director of Endovascular Stroke Treatment and Research.

He has published over 300 peer-reviewed publications and is the editor for *Neurosurgery*, endovascular section. He is the recipient of numerous awards for his research and contributions to the field.

In 2011, Dr. Levy founded and is president of the Program for Understanding Childhood Concussion and Stroke (PUCCS). The program's objective is to raise awareness of the effects of concussion.

This past year, Dr. Levy has focused on helping develop trials yielding evidence-based medicine for stroke intervention.

Dr. Levy practices and lives in Buffalo, New York, with his wife, Cindy, and their three children, Bennett, Hannon, and Lauren. He enjoys participating in triathlons, cycling, watching his children compete in sporting events, and spending time outdoors with his family.



SCIENTIFIC PROGRAM CHAIR

Steven N. Kalkanis, MD

Dr. Kalkanis is professor and chair of the Department of Neurosurgery, and co-director of the Neuroscience Institute at Henry Ford Health System in Detroit, Michigan, where he also runs the Center for Cancer Surgery. Dr. Kalkanis joined Henry Ford in 2004 after completing his neurosurgical training at Massachusetts General Hospital. He graduated with highest honors from Harvard University, where he was awarded the John Harvard Scholarship, and then Harvard Medical School, where he served as class marshal and received the Linnane Prize for highest academic achievement.

In 2009, Dr. Kalkanis led a multidisciplinary team of experts to publish the first and largest guideline to date in organized neurosurgery on the clinical treatment pathways for metastatic brain tumors. Since that time, he has chaired the guidelines efforts of the Joint Section on Tumors and was the founding chair of the CNS Guidelines Committee. Dr. Kalkanis also serves as a vice-chair of the Joint Guidelines Committee and has helped to spearhead eight separate clinical practice guidelines in a myriad of neurosurgical topics. Dr. Kalkanis has served on the CNS Executive Committee since 2009, and was recently elected as the secretary/treasurer for the Section on Tumors.

With the goal of refining future personalized medicine treatment protocols, Dr. Kalkanis also runs a funded translational research laboratory investigating miRNA, exosomes, and the molecular genetic differences between short- and long-term glioma survivors. Specializing in brain tumor surgery, he has been involved in numerous clinical trials for brain tumors and has authored over 100 peer-reviewed publications.

Steve and his wife, Laurel, especially enjoy traveling with and cheering on their three children, Nicholas, Connor, and Grace, in multiple sporting, scouting, and musical activities.



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Annual Meeting Committee



Annual Meeting Chair
**Elad I. Levy, MD, FACS,
FAHA**



Scientific Program Chair
Steven N. Kalkanis, MD



Vice Scientific
Program Chair
**James S. Harrop, MD,
FACS**

3-D and Live Surgery

Mustafa K. Baskaya, MD*
Aaron A. Cohen-Gadol, MD
Paul A. Gardner, MD
Zohar Ghogawala, MD, FACS

Basic Science

Manish K. Aghi, MD, PhD
Nicholas M. Boulis, MD
Daniel P. Cahill, MD
William T. Curry Jr., MD
Kristopher T. Kahle, MD, PhD

Consensus Sessions

Nicholas C. Bambakidis, MD*
Victor Chang, MD
Costas G. Hadjipanayis, MD, PhD
Peter Kan, MD, MPH, FRCSC
J D. Mocco, MD
John K. Ratliff, MD, FACS
David I. Sandberg, MD, FAAP, FACS
Michael P. Steinmetz, MD
Ken V. Snyder, MD, PhD
Gregory Trost, MD

Controversies/Hot Topics

James S. Harrop, MD, FACS*
Ricardo J. Komotar, MD**
Muwaffak Abdulhak, MD
Manish K. Aghi, MD, PhD
Sepideh Amin-Hanjani, MD, FACS, FAHA
Travis M. Dumont, MD
Wayne M. Gluf, MD
Costas G. Hadjipanayis, MD, PHD
Alexander A. Khalessi, MD, MS
John S. Kuo, MD, PhD, FACS
Elad I. Levy, MD, FACS, FAHA
Joseph S. Neimat, MD, MS
Julie G. Pilitsis, MD, PhD
Ashwini D. Sharan, MD
Clemens M. Schirmer, MD, PhD
Erol Veznedaroglu, MD

Dinner Seminars

Ashok R. Asthagiri, MD*
Krystal L. Tomei, MD, MPH **
Ian Yu Lee, MD
Brian T. Ragel, MD
Michael P. Steinmetz, MD

Exhibit Hall

Brian Ragel, MD
Michele Lengerman

Joint Guidelines Committee & CNS Guidelines Committee

Lissa C. Baird, MD
Brian Lim Hoh, MD
Laura S. Mitchell
Jeffrey J. Olson, MD
Timothy C. Ryken, MD, MS, FACS

Luncheon Seminars

Bernard R. Bendok, MD, MSCI, FACS*
Manish K. Aghi, MD**
Ricardo A. Hanel, MD, PhD
Jamal McClendon, MD
Vladimir Benes, MD, PhD
Ellen L. Air, MD, PhD
Youssef G. Comair, MD, FRCSC
Shekar N. Kurpad, MD, PhD
Charles Y. Liu, MD, PhD
Joshua M. Rosenow, MD, FACS
Arthur J. DiPatri Jr., MD
Edward R. Smith, MD
Robert J. Spinner, MD
Lynda J. Yang, MD, PhD
Erol Veznedaroglu, MD
Sunit Das, MD
Mustafa K. Baskaya, MD
Clemens M. Schirmer, MD, PhD

Neurosurgical Forum

Paul A. Gardner, MD
Shawn L. Hervey-Jumper, MD
Ekkehard M. Kasper, MD, PhD
Jody Leonardo, MD
Joseph S. Neimat, MD, MS
Edward R. Smith, MD

Practical Courses & Special Symposia

Brian Lim Hoh, MD*
Ekkehard M. Kasper, MD, PhD
Alexander A. Khalessi, MD, MS
Shekar N. Kurpad, MD, PhD
Zachary N. Litvack, MD, MCR
Darlene Angela Lobel, MD
Brian V. Nahed, MD
Nader Pouratian, MD, PhD
Adnan H. Siddiqui, MD, PhD
Michael Y. Wang, MD, FACS

Private Practice Management

Christopher Abood, MD, BS
George K. Bovis, MD

Resident SANS Challenge

Costas G. Hadjipanayis, MD, PhD
Stavropoula I. Tjoumakaris, MD

Senior Advisor

Anthony Asher, MD, FACS
Kim Burchiel, MD
Douglas Kondziolka, MD, MSc, FRCS(C), FACS
Anil Nanda, MD, FACS

Sergeant-at-Arms

Kevin Reinard, MD
Adam Robin, BS, MS, MD

Simulation Committee

Bernard A. Bendok, MD, MSCI, FACS
James S. Harrop, MD, FACS
Brian Ragel, MD
Ahmed M. Raslan, MBBS MCh
Wayne M. Gluf, MD

Turkish Neurosurgical Society and International Partner

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Feridun Acar, MD
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Kadir Erkmek, MD
Ziya Gokaslan, MD
Murat Gunel, MD
Talat Kiris, MD
Zeki Sekerci, MD
Ugur Ture, MD

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Alan M. Scarrow, MD, JD
Clemens M. Schirmer, MD, PhD
Michael P. Steinmetz, MD

Section on Cerebrovascular Surgery

Sepideh Amin-Hanjani, MD, FACS, FAHA
Adam S. Arthur, MD, MPH, FACS
Brian Lim Hoh, MD

Section on Disorders of the Spine and Peripheral Nerves

R. John Hurlbert, MD, PhD, FACS, FRCSC
Frank LaMarca, MD
Marcella A. Madera, MD
Lynda J. Yang, MD, PhD

Section on Neurotrauma and Critical Care

David O. Okonkwo, MD, PhD
Craig H. Rabb, MD

Section on Pediatric Neurological Surgery

Joshua J. Chern, MD, PhD
Daniel J. Guillaume, MD, MSc
Bermans Iskandar, MD
Catherine A. Mazzola, MD
Andrew Jea, MD

Section on Pain

Jason M. Schwalb, MD, FACS

Section on Stereotactic and Functional Neurosurgery

Aviva Abosch, MD, PhD
Robert E. Gross, MD, PhD
Brian H. Kopell, MD
Parag G. Patil, MD, PhD

Section on Tumors

Michael Lim, MD
Jonas Sheehan, MD, FACS

Women in Neurosurgery (WINS)

Uzma Samadani, MD

CME/Education Chair

Bernard A. Bendok, MD, MSCI, FACS

Resident Liaison

Krystal Tomei, MD, MPH

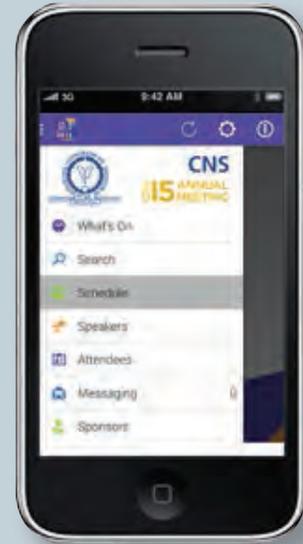
Advanced Practice Provide CME Liaison

Andrea L. Strayer, MS, NP

* Indicates subcommittee chair

** Indicates subcommittee co-chair

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Tanju Ucar
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Committee



Aclan Dogan
CNS-TNS Liaison



Feridun Acar
Introducing
Professor Yilmaz



Yücel Yilmaz
President Emeritus,
Kadir Has University,
Istanbul

Program Highlights

Saturday, September 26

8:00 am-8:30 pm

8:00 am-5:00 pm
SYMPOSIUM
SYM01: Neurovascular Update

5:00-6:30 pm
INTERNATIONAL RECEPTION

8:00 am-4:00 pm
PRACTICAL COURSES
PC01-PC14

6:00-8:30 pm
DINNER SEMINARS
DIN01 & DIN02

International Reception Contemporary Arts Center New Orleans

Saturday, September 26
5:00-6:30 pm

Exclusively for our colleagues from around the world, join the CNS for the 2015 International Reception at New Orleans' Contemporary Arts Center, located in the heart of the vibrant, eclectic Warehouse Arts District.



All international attendees and their registered guests are invited to attend.

Complimentary transportation from the Hilton New Orleans Riverside will be provided.

Symposium 1

8:00 am–5:00 pm

Fee: \$300

SYM01: Neurovascular Update: Evidence-Based Guidelines and Paradigm Shifts in Ischemic and Hemorrhagic Stroke

COURSE DIRECTORS: Peter Kan, Adnan H. Siddiqui

SPEAKERS: Sepideh Amin-Hanjani, Adam S. Arthur, Bernard R. Bendok, Ketan R. Bulsara, Kevin M. Cockroft, Carlos A. David, Kyle M. Fargen, Robert M. Friedlander, Ricardo A. Hanel, Brian Lim Hoh, Pascal Jabbour, Peter Kan, Alexander A. Khalessi, Douglas Kondziolka, Michael T. Lawton, Elad I. Levy, Demetrius K. Lopes, Jacques J. Morcos, Christopher S. Ogilvy, Adnan H. Siddiqui, Kenneth V. Snyder, Gary K. Steinberg, Babu Guai Welch

COURSE DESCRIPTION: This symposium provides a forum for attendees to obtain the latest information about current medical therapy for secondary stroke prevention and acute thrombolysis. We will review recent literature regarding the use of endovascular therapy for acute stroke as well as recent literature on endovascular and surgical revascularization (endovascular versus EC-IC bypass) for intracranial atherosclerotic or vaso-occlusive diseases. In addition, we will review recent literature on endovascular and surgical revascularization (CAS versus CEA) for extracranial atherosclerotic or vaso-occlusive diseases. The course will also cover optimal treatment of intracranial aneurysms including recent literature on flow-diversion and new technologies and the optimal treatment options of intracranial arteriovenous malformations including recent literature and multimodality strategies.

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

- ▷ Describe the current medical therapy for secondary stroke prevention and acute thrombolysis.
- ▷ Outline recent literature regarding the use of endovascular therapy for acute stroke.
- ▷ Discuss recent literature on endovascular and surgical revascularization (endovascular versus EC-IC bypass) for intracranial atherosclerotic or vaso-occlusive diseases.
- ▷ Describe recent literature on endovascular and surgical revascularization (CAS versus CEA) for extracranial atherosclerotic or vaso-occlusive diseases.

- ▷ Explain the optimal treatment of intracranial aneurysms including recent literature on flow-diversion and new technologies.
- ▷ Identify the optimal treatment options of intracranial arteriovenous malformations including recent literature and multimodality strategies.

8:00 am–8:30 am

Secondary Prevention for Stroke: An Update
Mandy Jo Binning, Peter Kan

8:30 am–9:15 am

Interventional Therapy for Stroke: An Update

Kyle M. Fargen, Elad I. Levy, Adnan H. Siddiqui



9:15 am–9:45 am

Morning Breakout Session

9:45 am–10:00 am

Patient Selection and Advanced Imaging for Acute Stroke Intervention: An Update
Kenneth V. Snyder



10:00 am–10:30 am

Morning Breakout Session

10:30 am–11:30 am

Management of Intracranial Atherosclerotic and Vaso-occlusive Disease: An Update

Sepideh Amin-Hanjani, Alexander A. Khalessi, Gary K. Steinberg

11:30 am–12:30 pm

Management of Extracranial Atherosclerotic and Vaso-occlusive Disease: An Update (with lunch)

Bernard R. Bendok, Robert M. Friedlander, Christopher S. Ogilvy



12:30 pm–1:00 pm

Afternoon Breakout Session

1:00 pm–2:15 pm

Optimal Treatment of Intracranial Aneurysms: An Update

Ketan R. Bulsara, Carlos A. David, Brian Lim Hoh, Jacques J. Morcos

2:15 pm–3:30 pm

New Technologies for Interventional Treatment of Intracranial Aneurysms: An Update

Adam S. Arthur, Ricardo A. Hanel, Pascal Jabbour, Demetrius K. Lopes



3:30 pm–4:00 pm

Afternoon Breakout Session

4:00 pm–5:00 pm

Management of Arteriovenous Malformations: An Update

Kevin M. Cockroft, Douglas Kondziolka, Michael T. Lawton, Babu Guai Welch

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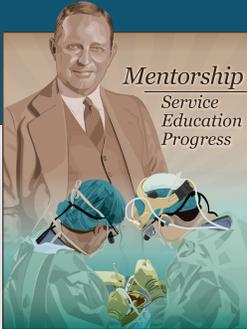
ANSPA

**ANSPA
September 26, 2015
New Orleans,
Louisiana
7:00 am–5:30 pm**

**ANSPA will be holding
its Fall CME meeting in
conjunction with the
CNS Annual Meeting in
New Orleans, LA!**

**ANSPA plans to offer
neurosurgical lectures
from top experts in the
field. Breakfast and
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contact:**

**Beth Kurcina
ANSPA Meetings Planner
cme@anspa.org
www.anspa.org**



Practical Courses

All 8:00 am–4:00 pm Practical Courses include a buffet lunch and morning and afternoon beverage service. The 8:00–11:30 am and the 12:30–4:00 pm Practical Courses include beverage service.

SATURDAY 26

TUMOR

8:00 am–4:00 pm

Part 1 Didactic + Lab \$1,600

Part 1 Didactic Only \$300

Parts 1 & 2 Didactic + Lab \$3,000

Please note: you will automatically be registered for PC16.

Parts 1 & 2 Didactic Only \$500

Please note: you will automatically be registered for PC16.

 **SANS ANNUAL MEETING** SANS supplemental exam is available for this course for an additional \$15.

PC01 Endoscopic and Keyhole Cranial Surgery—Part 1: Keyhole Craniotomy and Endoscopic Assisted Microsurgery (Cadaver Course)

COURSE DIRECTORS: James J. Evans, Daniel F. Kelly, Zachary N. Litvack
FACULTY: Garni Barkhoudarian, Sebastien Froelich, Nikolai J. Hopf, John Y.K. Lee, Jody Leonardo, Andrew S. Little, James K. Liu, Peter Nakaji, Vikram C. Prabhu, Daniel M. Prevedello, Burak Sade, Theodore H. Schwartz, Michael Edward Sughrue, Agahan Unlu, A. Samy K. Youssef, Gabriel Zada

COURSE DESCRIPTION: This course is designed for neurosurgeons interested in adding minimally invasive keyhole and endoscopic assisted techniques to their practice. The full-day clinic will provide a combination of didactic lectures, prosections, and mentored hands-on practice in minimally invasive approaches to the skull base and subcortical structures. Participants will have the opportunity to learn a number of approaches including the supraorbital (“eyebrow”) craniotomy, mini-pterional craniotomy, keyhole-retrosigmoid, keyhole-suprasellar, and keyhole-subcortical with a focus on endoscopic visualization. Panel discussions will review indications and outcomes, management of complications, and “tricks of the trade.” There are two registration options. For attendees opting for the didactic + lab course, a large portion of each block will be spent at the bench practicing the approaches with faculty mentors. Space is limited to 20 registrants for the lab. All attendees will participate in the didactics and have the opportunity to watch step-

by-step prosections by the faculty for each segment of the course.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the 3-D relational anatomy of the anterior and posterolateral skull base as it applies to keyhole surgery.
- ▷ Discuss indications for keyhole approaches and avoid common missteps and complications.
- ▷ Demonstrate acquisition of new manual surgical skills.
- ▷ Explain the role of new surgical instrumentation in advancing these surgical approaches.

TUMOR

8:00 am–4:00 pm

Fee: \$650

 **SANS ANNUAL MEETING** SANS supplemental exam is available for this course for an additional \$15.

PC02 Brain Tumor Update

COURSE DIRECTORS: Jason P. Sheehan, Isaac Yang

FACULTY: Manish K. Aghi, Nicholas C. Bambakidis, Frederick G. Barker, Orin Bloch, Jeffrey N. Bruce, Bob S. Carter, E. Antonio Chiocca, Franco DeMonte, Michael Lim, Russell R. Lonser, Theodore H. Schwartz, Mark Edwin Shaffrey, Philip V. Theodosopoulos, Michael E. Sughrue

COURSE DESCRIPTION: This course will include current research topics, but will emphasize practical management issues. It will provide an up-to-date overview of current management strategies for major types of glial tumors including astrocytomas, oligodendrogliomas, and others. Treatment strategies for major types of benign and malignant brain tumors of non-glial origin will also be discussed.

LEARNING OBJECTIVES: Upon the completion of this course, participants will be able to:

- ▷ Formulate treatment plans based on state-of-the-art management of benign and malignant brain tumors including meningiomas, acoustic neuromas, skull base tumors, pediatric tumors, and metastases.
- ▷ Integrate current concepts in glioma management into their treatment plans, including surgical techniques, adjuvant treatments, tumor biology, and clinical management decisions.

GENERAL

8:00–11:30 am

Fee: \$450

PC03 Neurosurgery Board Review

COURSE DIRECTOR: Allan D. Levi

FACULTY: James S. Harrop, Ricardo J. Komotar, Thomas J. Leipzig, Robert J. Spinner

COURSE DESCRIPTION: This course will provide an in-depth review of likely oral board questions and topics.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss strategies for studying and mastering a wide range of typical exam-style questions.
- ▷ Plan a timeline for case collection, submission, studying, and practice sessions.
- ▷ Evaluate high-yield clinical scenarios likely to appear on the exam.

GENERAL

8:00–11:30 am

Fee: \$450

PC04 3-D Surgical Neuroanatomy (Supratentorial)

COURSE DIRECTORS: Juan Carlos Fernandez-Miranda

FACULTY: Emel Avci, Spiros L. Blackburn, Aaron A. Cohen-Gadol, Evandro De Oliveira, Pablo A. Rubino, Jeffrey M. Sorenson, Ugur Ture

COURSE DESCRIPTION: This course will review relevant surgical neuroanatomy using 3-D stereoscopic projection. The areas to cover will be cortical and white matter anatomy, cerebrovascular, and skull base anatomy. Master surgeons will illustrate the importance of surgical neuroanatomy for clinical practice with surgical cases and HD/3-D video illustrations. There will be an emphasis both in intricate anatomical regions such as insular, ventricles, and cavernous sinus, and newest techniques such as high-definition fiber tractography (HDFT) planning for intrinsic tumor surgery and endoscopic endonasal techniques for skull base lesions.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Review the complex anatomy of the fiber tracts and the application of HDFT in clinical practice.
- ▷ Identify the key surgical anatomy for accessing the ventricles, basal cisterns, and anterior circulation aneurysms.
- ▷ Discuss the different routes through the anterior skull base, middle fossa, and cavernous sinus, including endoscopic endonasal and transcranial approaches.

Practical Courses

SPINE

8:00–11:30 am

Fee: \$450

PC05 Practical Spine Biomechanics for Clinical Practice

COURSE DIRECTORS: Edward C. Benzel, Tyler R. Koski

FACULTY: Nader S. Dahdaleh, John C. Liu, Selcuk O. Palaoglu, John H. Shin, Gregory R. Trost, Robert G. Whitmore

COURSE DESCRIPTION: This course will present the physical principles and biomechanical foundations of spinal surgery and stabilization via a didactic and interactive case discussion format.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Integrate biomedical principles and strategies into of spinal surgery their surgical planning.
- ▷ Strategize to avoid and manage complications.

VASCULAR

8:00–11:30 am

Fee: \$450

PC06 Open Aneurysm Surgery: A 3-D Practical Course

COURSE DIRECTORS: Michael T. Lawton, Byron Gregory Thompson

FACULTY: Fady T. Charbel, Ali F. Krisht, Jacques J. Morcos, Troy D. Payner, Howard A. Riina, Ajith J. Thomas

COURSE DESCRIPTION: This course will discuss optimal approaches for management of intracranial aneurysms.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Analyze case presentations of patients presenting with intracranial aneurysms to select the optimal (endovascular or microsurgical) approach.
- ▷ Interpret advanced preoperative imaging evaluation to maximize effectiveness of preoperative surgical planning.
- ▷ Plan for skull base approaches for anterior and posterior circulation aneurysm surgery in order to optimize exposure for complex aneurysms.

SOCIOECONOMIC

8:00–11:30 am

Fee: \$450

PC07 Implementing Quality Improvement in Neurosurgery: Raising Quality, Lowering Cost, and Maximizing Compensation

COURSE DIRECTORS: Alexander Khalessi, Nader Pouratian

FACULTY: Anthony L. Asher, Zoher Ghogawala, Matthew J. McGirt, Joseph H. Piatt

COURSE DESCRIPTION: The course provides a comprehensive introduction to implementing quality improvement in a neurosurgical program or practice.

While delivering quality care has always been an expectation, Medicare mandates and reimbursements, public reporting, and evidence-based practice guidelines now require that physicians and neurosurgeons actively engage in the process of delivering and improving quality care. The goals of developing a quality improvement program are to optimize patient care using an evidence-based approach and to minimize the cost of health care, thereby providing the best value to patients and payees. In this interactive practical course Participants will learn that implementing quality improvement in neurosurgery requires recognition of evidence-based best-practice guidelines, models for implementations, and continuous measurement to assess success and outcomes. Participants will also review the history of quality improvement and lessons learned from the aviation industry, which has made great strides in standardizing safety. Participants will learn about complementary methods of clinical research and process improvement to improve patient outcome. The course will specifically explore the neurosurgical quality improvement landscape and areas for prioritization. Participants will learn to apply these concepts to increase value in neurosurgery by cutting costs and decreasing waste and utilization. Finally, participants will learn how to improve patient outcomes and satisfaction and how to leverage these improvements to augment physician compensation.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss how aviation industry quality improvements have been successfully applied in surgery.
- ▷ Express the concept of “just culture.”
- ▷ Describe how to implement and sustain comprehensive value-based quality improvement.
- ▷ Explain how to track clinical quality improvement.
- ▷ Apply concepts to cut costs, decrease utilization, and thereby increase revenue and compensation.

NEW

12:30–4:00 pm

Fee: \$450

PC08 Taking Your Innovative Idea to Market

COURSE DIRECTOR: L. Nelson Hopkins

FACULTY: Robert A. Fenstermaker, Eric C. Leuthardt, Elad I. Levy, Ali R. Rezai, Henry H. Woo

COURSE DESCRIPTION: Neurosurgeons are thoughtful innovators but are often unable to follow through on ideas for want of time and capital. This

course will highlight the experience of successful neurosurgeon-innovators and offer insights to young, innovative neurosurgeons on the mechanisms with which they may translate their potentially unique and innovative ideas into successful commercial ventures.

LEARNING OBJECTIVES: After completion of this course, participants will be able to:

- ▷ Describe the process of taking an idea to the market.
- ▷ Discuss the obstacles that are commonly encountered in building a successful commercial enterprise.
- ▷ Review available mechanisms to fund your innovation and make it commercially successful.

FUNCTIONAL

12:30–4:00 pm

Fee: \$450

PC09 Cranial and Spinal Radiosurgery Update

COURSE DIRECTORS: Randy L. Jensen, Andrew E. Sloan

FACULTY: Mark H. Bilsky, Steven D. Chang, Hakan Emmez, Michael W. McDermott, Jason P. Sheehan

COURSE DESCRIPTION: This course will discuss the appropriate use of various radiosurgery delivery platforms for benign and malignant cranial lesions.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Recommend radiosurgery more safely by recognizing the appropriate use of radiosurgery for benign and malignant cranial lesions.
- ▷ Differentiate between the various radiosurgery delivery platforms.
- ▷ Implement radiosurgery delivery techniques to avoid injury to intracranial neurovascular structures.
- ▷ Identify the indications for the use of radiosurgery for functional disorders and pain.
- ▷ Apply techniques learned in this course to formulate a radiosurgery plan for a given cranial pathology.

GENERAL

12:30–4:00 pm

Fee: \$450

PC10 3-D Surgical Neuroanatomy (Infratentorial)

COURSE DIRECTOR: Juan Carlos Fernandez-Miranda

FACULTY: Vladimir Benes, Spiros L. Blackburn, Aaron A. Cohen-Gadol, Evandro De Oliveira, Pablo A. Rubino, Jeffrey M. Sorenson, Necmettin Tanriover

COURSE DESCRIPTION: This course will review relevant surgical neuroanatomy using 3-D stereoscopic projection. The areas to cover will be cerebellum and fourth ventricle, posterior circulation, and lateral

Practical Courses

and posterior skull base approaches. Master surgeons will illustrate the importance of surgical neuroanatomy for clinical practice with surgical cases and HD/3-D video illustrations. Surgical approaches to the cerebello-pontine angle, clival and petroclival region, jugular foramen, and foramen magnum will be discussed both from transcranial (retrosigmoid, anterior and posterior transpetrosal, suboccipital transcondylar) and endoscopic endonasal routes.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Review the surgical anatomy and approaches to the cerebellum, cerebello-pontine angle, and fourth ventricle.
- ▷ Identify the key surgical anatomy for navigating the posterior basal cisterns and exposing posterior circulation vessels.
- ▷ Explain the different routes to the clival, petroclival, and foramen magnum regions, including endoscopic endonasal and transcranial approaches.

SPINE

12:30–4:00 pm

Fee: \$450



SANS
ANNUAL MEETING

SANS supplemental exam is available for this course for an additional \$15.

PC11 Cervical Spondylotic Myelopathy and Radiculopathy: Treatment Approaches and Options

COURSE DIRECTORS: Regis W. Haid, Michael G. Kaiser

FACULTY: Nathaniel P. Brooks, Kurt M. Eichholz, James S. Harrop, Langston T. Holly, John E. O'Toole

COURSE DESCRIPTION: This course will present the pathophysiology, clinical presentation and current diagnostic modalities involved in the care of cervical degenerative disease. The indications, techniques and complications associated with the operative management of cervical degenerative disease, including correction of degenerative deformities, will be reviewed through lectures, case-presentations, and hands-on practical exercises.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify the appropriate indications and recommend state-of-the-art techniques for surgical management of degenerative disease of the cervical spine.
- ▷ Establish steps to avoid common complications.

TRAUMA

12:30–4:00 pm

Fee: \$450

PC12 Neurocritical Care and Neurosurgical Emergencies Update

COURSE DIRECTORS: Jack Jallo, Christopher J. Madden

FACULTY: Kamran Athar, Antonio Belli, Ali Metin Kafadar, Ian E. McCutcheon, John K. Ratliff

COURSE DESCRIPTION: This course will promote rapid identification and a better understanding of the management of neurosurgical emergencies.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Design key management strategies for emergencies involving the brain, spine, and peripheral nerves.
- ▷ Evaluate the current evidence for patient specific therapies.
- ▷ Apply the latest modalities in the management and understanding of neurosurgical emergencies.
- ▷ Identify controversies in management of these emergencies, considering the role of the surgeon in emergency neurosurgery.
- ▷ Discuss the physiology of a variety of neurosurgical emergencies.

GENERAL

12:30–4:00 pm

Complimentary

PC13 RRC Next Accreditation System, Milestones, and the Neurosurgery Matrix

COURSE DIRECTORS: Kim J. Burchiel, Nathan R. Selden

FACULTY: Kim J. Burchiel, Pamela L. Derstine, Nathan R. Selden

COURSE DESCRIPTION: This course will be particularly useful for Residency Program Directors, Associate Program Directors, Program Coordinators, Department Chairs, and other faculty and educational leaders in academic neurosurgery centers. The course will cover the dynamic changes now occurring in the RRC Common Program Requirements and Neurosurgery Residency Program Requirements, the RRC Milestones Curriculum initiative, and the Neurosurgery Matrix Curriculum. Details of these new neurosurgery residency curricular initiatives, rolled out in all ACGME accredited programs in July 2013, will be reviewed by members of the Neurosurgery RRC, the ACGME, and the Society of Neurological Surgeons Committee on Resident Education (CoRE). Time for questions and interactive discussion with panel members will be provided.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ List the principal new requirements for ACGME accredited neurological surgery residencies.
- ▷ Describe the principal components of the ACGME Milestones teaching and assessment system.

NEW

TUMOR, VASCULAR

12:30–4:00 pm

Fee: \$450

PC14 Reconstructive Skull Base: Indications, Techniques, and Complication Avoidance

COURSE DIRECTOR: Jeremy N. Ciporen

FACULTY: Costas G. Hadjipanayis, Daniel F. Kelly, Daniel M. Prevedello, Theodore H. Schwartz, Laligam N. Sekhar, Justin Schultz Cetas

COURSE DESCRIPTION: Neurosurgeons are faced with the challenge of selecting the best studies for diagnosis and treatment options for the repair of complex skull base defects involving the anterior, middle, and posterior fossa. This course will teach a best practice algorithm for selecting high-yield diagnostic studies that define the defect as well as the most reliable reconstructive technique. The technical details and nuances of the reconstruction will be discussed. This course will highlight clinical scenarios, the relevant anatomy and advantages of pre-operative planned surgical resection of pathology as well as the most reliable reconstructive technique. The attendee will learn and expand on their knowledge regarding the pros and cons of specific reconstructions.

LEARNING OBJECTIVES: Upon completion of this course participants will be able to:

- ▷ Discuss the diagnostic evaluation and studies needed for the management of open and endoscopic skull base defects.
- ▷ Describe the indications, utility, and reliability of specific free grafts, pedicled regional flaps, and free flaps for repair of anterior, middle, and posterior fossa defects.
- ▷ Recognize potential pitfalls and complications in skull base surgery and create a plan for management of skull base defects.

Dinner Seminars

Complimentary shuttle service will be provided for all dinner seminars. Shuttles will depart from and return to the Hilton Riverside hotel.



Restaurant August

Located in a historic 19th century French-Creole building in New Orleans' Central Business District, August's contemporary French cuisine focuses on local ingredients inspired by Chef John Besh's classical training here and in Europe, and by the depth of his own Southern Louisiana roots.

Accolades: Semi-finalist for the 2012 and 2013 James Beard Awards Outstanding Restaurant, selected by Gayot as a top 40 restaurant in the United States, and named as one of the Times Picayune's top 10 restaurants for the past two years in a row.

Saturday, September 26

6:00–8:30 pm

Fee: \$190

**SAT
26**

DIN01: New Innovations in Spine Surgery

MODERATOR: Domagoj Coric

SPEAKERS: Iain H. Kalfas, Praveen V. Mummaneni, Daniel Refai, Juan S. Uribe

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the merits of novel image guidance techniques in spinal surgery.
- ▷ Identify new intraoperative monitoring technologies.
- ▷ Appraise the current state of robotics in spinal surgery.
- ▷ Recognize the indications and limitations of minimally invasive deformity surgery.

AGENDA

6:00–6:30 pm	Image Guidance in Spinal Surgery Iain H. Kalfas
6:30–7:00 pm	Intraoperative Monitoring in MIS Juan S. Uribe
7:00–7:30 pm	Spinal Surgery and Robotics Daniel Refai
7:30–8:00 pm	Minimally Invasive Deformity Surgery Praveen V. Mummaneni
8:00–8:30 pm	Discussion



Saturday, September 26

6:00–8:30 pm

Fee: \$190

**SAT
26**

DIN02: Managing Your Practice in a Changing Environment: The Transition from Volume to Value-based Care

MODERATORS: Anthony Asher, John J. Knightly

SPEAKERS: Deborah L. Benzil, Zoher Ghogawala, John K. Ratliff, John A. Wilson

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify how this transition is affecting their practice.
- ▷ Discuss how payers and providers are reacting to this industry change.
- ▷ Discuss current barriers to achieving a higher value-based care system.

Tomas Bistro

Located just minutes from the French Quarter, Tomas Bistro is carved out of an old factory in the Warehouse District and made to house a French Creole style bistro. A romantic and cozy warm feeling attracts locals for a small bite, or a full dinner. The menu is made to please many palates and the French Creole style of old-world food brings the love of cooking to your table.

Accolades: Winner of OpenTable's Diners' Choice 2015.

SUN
27

Program Highlights

Sunday, September 27

8:00 am–8:30 pm

8:00 am–4:00 pm

SYMPOSIUM

SYM02: Neurovation

8:00 am–4:00 pm

PRACTICAL COURSES

PC15–PC29

1:30–4:00 pm

Choice Abstracts: Spanning the Spectrum of Neurosurgery

MODERATORS: Alexander A. Khalessi, John K. Ratliff, Krystal Lynne Tomei

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Evaluate the findings of novel neurosurgical studies, and critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

(See pages 46–47 for Oral Papers 100–123)

4:30–6:30 pm

General Scientific Session I

6:30–8:30 pm

Opening Reception

Hilton New Orleans Riverside



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CNS

Symposium 2

SUN
27

8:00 am–4:00 pm

Fee: \$300

SYM02: Neurovation

CME is not offered for this symposium.

DIRECTOR/MODERATOR: Brian L. Hoh

COURSE DIRECTOR: Brian L. Hoh

SPEAKERS: Jeff Asfour, Susan Brown, David L. Caraway, Daniel DiLorenzo, James Doty, Robert Fenstermaker, Don Gaver, Susan Harkema, Amy Heimberger, Wes Hodges, Jeff Kramer, Eric Leuthardt, Adel Malek, Sergi Molchanov, Stephen Monteith, Michael Moore, David W. Newell, Vinny Podichetty, John Sampson, Edward Schulak, Paul Skinner, Kevin Tracey, Abhi Vase, Lynda J. Yang

COURSE DESCRIPTION: Engage in open dialogue about the future of biologics/drug delivery, minimally invasive surgery, neurorestoration and rehabilitation, pain, neuromodulation, and the business of innovation and technology in neuromedicine. Neuromedicine is among the most rapidly growing areas in surgery and medicine, and novel technologies in devices, imaging, biomaterials, molecular diagnostics, and regenerative medicine are leading this field forward.

This all-day open forum will include faculty of key thought-leaders in neurosurgery, chief executive officers, and lead engineers with expertise in the cutting-edge technologies of the future. The open forum will enable participants, faculty, and panelists to engage in free dialogue for the purpose of collectively advancing the field. Don't miss this unique opportunity to be part of and have a voice in this important event highlighting innovation and technology in neurosurgery.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify areas of need for new technology in biologics/drug delivery, minimally invasive surgery, neurorestoration and rehabilitation, pain, and neuromodulation in neuromedicine.
- ▷ Discuss innovative technologies in biologics/drug delivery, minimally invasive surgery, neurorestoration and rehabilitation, pain, and neuromodulation in neuromedicine.
- ▷ Outline business and regulatory issues that help and hinder the development of medical technologies and devices.

8:00 am

Introduction

Brian L. Hoh

BIOLOGICS/DRUG DELIVERY

8:00–8:10 am

Osteovantage

Eric Leuthardt

8:15–8:25 am

Conceptualization and Development of Tumor Vaccines

Amy Heimberger, John Sampson

8:30–8:40 am

Tumor Vaccine

Robert Fenstermaker

8:45–8:55 am

Implantable Drug Infusion

Paul Skinner

9:00–9:10 am

Developing a “Nerve-on-a-Chip” as a Preclinical Physiological Model: Translation for Drug Development

Michael Moore

MINIMALLY INVASIVE

9:15–9:25 am

Deep Hemorrhage Evacuation: A Game-changing Surgical Approach to a Largely Untreated Condition

Jeff Asfour

9:30–9:40 am

Liquid Embolics

Vinny Podichetty

9:45–9:55 am

Endovascular Device to Treat Hydrocephalus

Adel Malek

NEURO-RESTORATION AND REHABILITATION

10:00–10:10 am

Motor Control Devices

Lynda J. Yang

10:15–10:25 am

Robotic Exoskeleton for Stroke Patients

Sergi Molchanov

10:30–10:40 am

Neuroolutions

Eric Leuthardt

10:45–10:55 am

Electric Stimulation-enabled Ambulation for the SCI Patient

Susan Harkema

11:00–11:10 am

Paradigm Shift Through Evidence: Redirecting Neurostimulation Innovation

David L. Caraway

11:15–11:25 am

Tactile Pattern Discrimination

Susan Brown

11:30–11:40 am

SPGR

11:45–11:55 am

Flexible Spinal Cord Implants: e-Dura



12:00–12:45 pm

Lunch

PAIN

12:45–12:55 pm

Percutaneous Peripheral Nerve Stimulation (PNS) for Pain Management

Joseph Boggs

1:00–1:10 pm

Doral Root Ganglion Stimulation

Jeff Kramer

NEUROMODULATION FOR NOVEL INDICATIONS

1:15–1:25 pm

Neuromodulation Technology

Abhi Vase

1:30–1:40 pm

SETPOINT Medical

Kevin Tracey

1:45–2:15 pm

Beverage Break

BUSINESS OF NEUROVATION

2:15–2:25 pm

Attracting Venture Capitalists to Convert Your Idea into a Company

Edward Schulak

2:30–2:40 pm

New Venture Creation—Pearls and Pitfalls in Medical Device Innovation and Commercialization

Daniel DiLorenzo

2:45–2:55 pm

Biomedical Innovation and the Creation of an Innovation Pipeline

Don Gaver

IMAGING

3:00–3:10 pm

Intraoperative Imaging Innovation and Other Disruptive Technologies in Healthcare

James Doty

3:15–3:25 pm

Intraoperative Tractography and Monitoring

Wes Hodges

3:30–3:40 pm

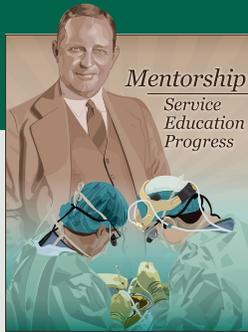
Therapeutic Neurosonology: A New Development in the Neurosciences

David W. Newell

3:45–3:55 pm

Focused Ultrasound: Present and Future Technologies and Applications

Stephen Monteith



Practical Courses

SUNDAY 27

RESIDENT
8:00 am–4:00 pm Fee: \$250

PC15 Simulation-Based Neurosurgical Training

This course is for PGY3, PGY4, and PGY5 residents. A \$250 registration fee is required to guarantee a seat. Upon completion, the \$250 fee will be refunded in its entirety.

COURSE DIRECTORS: Bernard R. Bendok, Darlene Angela Lobel, Brian T. Ragel
FACULTY: Peter Campbell, Rohan V Chitale, Nader S. Dahdaleh, Aaron S. Dumont, James Bradley Elder, Todd B. Francis, Aruna Ganju, George M. Ghobrial, Andrew W. Grande, James S. Harrop, Daniel J. Hoh, Pascal Jabbour, Elad I. Levy, J D. Mocco, Gregory J. Murad, Daniel M. Prevedello, Wilson Zachary Ray, Andrew J. Ringer, Ben Z. Roitberg, Gail Linskey Rosseau, Clemens M. Schirmer, Nathan R. Selden, Warren R. Selman, Adnan H. Siddiqui, Harminder Singh, Rabih G. Tawk, Erol Veznedaroglu
COURSE DESCRIPTION: This course utilizes simulation-based training techniques to educate neurosurgical residents in the skills necessary to manage patients with traumatic brain injury, spine trauma and deformity, cerebrovascular disorders, and skull based tumors. The course incorporates both didactic and hands-on training using state-of-the-art simulators, including virtual reality-based and physical models. Participants can expect one-on-one training with faculty experts in the subspecialty modules.

- LEARNING OBJECTIVES:** Upon completion of this course, participants will be able to:
- ▷ Demonstrate proficiency using realistic simulators for craniotomy for trauma, placement of an external ventricular drain, cervical spine decompression and lumbar pedicle screw placement, repair of CSF leak, performance of cerebral angiogram, and performance of retrosigmoid craniotomy.
 - ▷ Explain indications for and basic concepts and techniques in management of traumatic brain injury, degenerative spine disease, cerebrovascular disease, and skull base tumors.

TUMOR
8:00 am–4:00 pm Fee
 Part 2 Didactic + Lab \$1,600
 Part 2 Didactic Only \$300

PC16 Endoscopic and Keyhole Cranial Surgery—Part 2: Endoscopic Endonasal Skull Base Surgery (Cadaver Course)

COURSE DIRECTORS: James J. Evans, Daniel F. Kelly, Zachary N. Litvack
FACULTY: Garni Barkhoudarian, Sebastien Froelich, Nikolai J. Hopf, John Y.K. Lee, Jody Leonardo, Andrew S. Little, James K. Liu, Peter Nakaji, Vikram C. Prabhu, Daniel M. Prevedello, Theodore H. Schwartz, Michael Edward Sughrie, A. Samy K. Youssef, Gabriel Zada
COURSE DESCRIPTION: This course is designed for neurosurgeons interested in adding endoscopic endonasal techniques to their practice. The full-day clinic will provide a combination of didactic lectures, prosections, and mentored hands-on practice in purely endoscopic endonasal approaches to the skull base. Participants will have the opportunity to learn a number of approaches from faculty from around the world, including transsphenoidal, transtuberulum, transplanum, petrosal, and transclival. Participants will also learn the latest techniques in preservation of sinus function, olfaction, and reconstruction of endonasal defects. Panel discussions will review indications and outcomes, management of complications, and “tricks of the trade.” There are two registration options. For attendees opting for the didactic + lab course, a large portion of each block will be spent at the bench practicing the approaches with faculty mentors. Space is limited to 20 registrants for the lab. All attendees will participate in the didactics and have the opportunity to watch step-by-step prosections by the faculty for each segment of the course.

- LEARNING OBJECTIVES:** Upon completion of this course, participants will be able to:
- ▷ Describe the 3-D relational anatomy of the paranasal sinuses and ventral skull base as it applies to endonasal surgery.
 - ▷ Discuss indications for endonasal approaches and avoid common missteps and complications.
 - ▷ Demonstrate acquisition of new manual surgical skills.
 - ▷ Explain the role of new surgical instrumentation in advancing these surgical approaches.

FUNCTIONAL
8:00–11:30 am Fee: \$450

PC17 Laser Ablation Surgery: Indications, Techniques, and Pitfalls

COURSE DIRECTOR: Robert E. Gross
FACULTY: Shabbar F. Danish, Ian Yu Lee, Eric C. Leuthardt, Renee M. Reynolds, Michael Schuller
COURSE DESCRIPTION: MR-guided laser ablation is rapidly emerging as minimally invasive alternative for the treatment of epilepsy, metastatic tumors, radiation necrosis, cavernous malformations, and other intracranial pathology. In this course, we will review techniques, applications, and outcomes to illustrate the gaps that this emerging technology can fill for neurosurgeons and prospective patients.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain the underlying principles of image-guided laser ablation.
- ▷ List the indications for MR-guided laser ablation.
- ▷ Describe the outcomes and risks of MR-guided laser ablation surgery.

SOCIOECONOMIC
8:00–11:30 am Fee: \$450

PC18 Building a Neurosciences Program

COURSE DIRECTOR: Steven A. Toms
FACULTY: Megan Brosious, James M. Ecklund, Robert M. Friedlander, John B. Pracyk, John K. Ratliff, Adnan H. Siddiqui, Gary K. Steinberg
COURSE DESCRIPTION: The development of a neurosciences program is a complex enterprise involving the initiation and maintenance of a multitude of institutional and departmental relationships. Although there are significant advantages in an integrated neurosciences program, significant coordination and entry barriers can impede the program growth. This course will describe steps in neuroscience program development, differentiation, and maturation in order to aid participants in launching and coordinating their own neuroscience programs.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe how a coordinated neuroscience program differs from a neurosurgery department or practice.
- ▷ Illustrate the structures under which neuroscience programs can be formed.
- ▷ Explain the importance of neuroscience programs for hospital platforms and accountable care organizations.
- ▷ Assess mechanisms of neuroscience

Practical Courses

- program governance.
- ▷ Outline the methods by which neuroscience programs can differentiate a practice.
 - ▷ Discuss the roles of research and quality metrics in developing a neuroscience program.

GENERAL

8:00–11:30 am Fee: \$450

PC19 Integration of Wisdom and Pearls into the Advanced Practice Provider's Practice

COURSE DIRECTORS: Kristina Shultz, Andrea L. Strayer

FACULTY: Azam S. Ahmed, Fahad A. Alkherayf, Edward C. Benzel, Marc Eichler, Nirav J. Patel, Joshua M. Rosenow, Michael P. Steinmetz, Laurie Yablon

COURSE DESCRIPTION: The neurosurgery advanced practice provider (APP) is challenged with learning new innovations and specialty trends while staying abreast of day-to-day practice demands. The critical decision-making skills and intellectual ability of APPs in conjunction with balancing patient care needs and efficiency provides a cornerstone for neurosurgery practices. This practical clinic will explore innovation in neurosurgery, as well as trends and practice pearls—additionally, how various innovations not only impact patient care, but also how APPs are an integral part of neurosurgery trends and innovations.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Analyze a variety of neurosurgery innovations and trends and the practical integration into APP practice.
- ▷ Discuss pearls that will enhance the APP's everyday practice.

SPINE

8:00–11:30 am Fee: \$450

PC20 My Worst Spinal Complication: What I Learned

COURSE DIRECTOR: Christopher I. Shaffrey, Juan S. Uribe

FACULTY: Robert Bohinski, Joseph S. Cheng, Robert F. Heary, R. John Hurlbert, Praveen V. Mummaneni, Laurence D. Rhines, Michael P. Steinmetz, Vincent C. Traynelis

COURSE DESCRIPTION: This course will present and review the avoidance, evaluation, pathophysiology, and treatment of surgical complications. Contemporary avoidance, evaluation, and management of surgical complications remain controversial. Despite significant medical advances, surgical complications can result in poor clinical outcomes and increased medical costs. There is a need

for a better understanding of these surgical complications.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the contemporary evaluation and the pathophysiology of spinal complications.
- ▷ Develop complication avoidance and management strategies for their current treatment plans.

TUMOR

8:00–11:30 am Fee: \$450

PC21 Surgical Management of Tumors in Eloquent Regions

COURSE DIRECTOR: Guy M. McKhann

FACULTY: Mustafa K. Baskaya, Hugues Duffau, Andrew J. Fabiano, Isabelle M. Germano, Jorge Alvaro Gonzalez-Martinez, Ekkehard M. Kasper, Eric C. Leuthardt, Daniel A. Orringer

COURSE DESCRIPTION: This course will present surgical management of tumors within eloquent areas of the brain, including brain mapping, planning, and avoidance of technical errors.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify the indications for surgical management of tumors within eloquent areas of the brain.
- ▷ Integrate current technologies for pre-operative and intra-operative brain mapping for tumors in eloquent cortex and fiber tracts into surgical planning by recognizing how they can enhance the safety of surgery while considering their limitations.
- ▷ Develop strategies to avoid common technical errors in brain mapping techniques.

NEW

GENERAL

8:00–11:30 am Fee: \$450

PC22 Clinical Guidelines Development: A Primer on the Development and Review of Evidence-Based Clinical Guidelines

COURSE DIRECTORS: Jeffrey J. Olson, Timothy C. Ryken

FACULTY: Sepideh Amin-Hanjani, Kevin M. Cockroft, Steven N. Kalkanis, Laura S. Mitchell, Daniel K. Resnick, Beverly C. Walters

COURSE DESCRIPTION: This course is designed to provide novice and more advanced learners with the knowledge, skills, and tools to develop and to review evidence-based clinical practice guidelines and to advance the level of expertise of those who have some history in guideline development. The course content will include topics that are not commonly included in most methodologies but will stimulate discussion and advance the

field of evidence-based medicine.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify the developmental process, procedures, forms, and templates that can be used or adapted for use in your own guideline development efforts.
- ▷ Outline how to conduct comprehensive and systematic evidence reviews, assess the quality of studies, create and interpret evidence tables and profiles, and grade the strength of recommendations.
- ▷ Assess the quality of the guidelines.
- ▷ Illustrate challenges in guideline development (i.e. handling dissenting voices, incorporating patient values and preferences, dissemination and implementation).

NEW

GENERAL

12:30–4:00 pm Fee: \$450

PC23 Leaders Are Not Born, They Are Made: Executive Leadership Training for the Medical Professional

COURSE DIRECTORS: David J. Langer, Elad I. Levy

FACULTY: Fady T. Charbel, Michael Ensley, L. Nelson Hopkins, Raj K. Narayan, Tony Stein

COURSE DESCRIPTION: In the rapidly changing healthcare environment, just like successful business, successful practices maintain a competitive advantage by having strong leadership, a clear vision, and persistent innovation. In this practical course, the keys to effective leadership will be critically assessed. Topics covered will include: managing people, managing change, creating vision, managing risk, managing conflict.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe and implement advanced skills and techniques in managing people.
- ▷ Examine and discuss advanced skills and techniques in managing change.
- ▷ Describe and implement advanced skills and techniques in creating vision.
- ▷ Describe and implement advanced skills and techniques in managing risk.
- ▷ Describe and implement advanced skills and techniques in managing conflict.

NEW SPINE
12:30–4:00 pm Fee: \$450

PC24 Spinal Deformities: Short, Long, Medical—What is the Best Option? With Case-based Discussions

COURSE DIRECTORS: James S. Harrop, Christopher I. Shaffrey
FACULTY: Daniel J. Hoh, Tyler R. Koski, Praveen V. Mummaneni, Justin S. Smith, Juan S. Uribe
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain the underlying anatomic principles regarding spinal alignment and deformities.
- ▷ Define, measure, and calculate spinal parameters such as: spinal balance, pelvic incidence, Sacral slope, Cobb angles, and pelvic tilt.
- ▷ Describe lumbar deformities and coronal and sagittal deformities.
- ▷ Classify lumbar spondylolisthesis and understand operative approaches and principles.

NEW PERIPHERAL NERVE
12:30–4:00 pm Fee: \$550

PC25 Peripheral Nerve Exposure and Anatomy for Oral Boards: Cadaver Demonstration

COURSE DIRECTORS: Allen H. Maniker, Rajiv Midha
FACULTY: Kimberly Harbaugh, Marie-Noelle Hebert-Blouin, Mark A. Mahan, Abhay Varma, Eric L. Zager
COURSE DESCRIPTION: Using a combination of didactic lectures, case-based discussion, and pro-section demonstration, the faculty will provide learners with fundamental knowledge in peripheral nerve evaluation, surgical exposure, and management of common surgical nerve conditions.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Demonstrate common surgical exposures to nerves throughout the body.
- ▷ Illustrate the relationship of nerves to their potential sites of compression/injury.
- ▷ Cite examples of commonly performed new techniques (e.g., nerve transfers) and their indications.

VASCULAR, TUMOR
12:30–4:00 pm Fee: \$450

PC26 Cranial Neurosurgery: Complication Avoidance and Management

COURSE DIRECTORS: William T. Couldwell, Jack P. Rock
FACULTY: Ossama Al-Mefty, Robert G. Grossman, Matthew A. Hunt, Anil Nanda, Necmettin Pamir, Robert H. Rosenwasser
COURSE DESCRIPTION: This course will use case presentations, didactic lectures, and interaction with faculty to provide clinical scenarios that may result in complications. Appropriate management will be reviewed. Strategies designed to anticipate and avoid complication will be discussed.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify common complications associated with a variety of cranial procedures.
- ▷ Plan strategies to avoid and manage common cranial complications.

TRAUMA
12:30–4:00 pm Fee: \$450

PC27 Trauma Update: Traumatic Brain Injury

COURSE DIRECTOR: Nancy Carney, Shelly D. Timmons
FACULTY: Rocco Armonda, Asim Mahmood, Gregory J. Murad, David O. Okonkwo, Roland A. Torres, Tanju Ucar, Jamie S. Ullman
COURSE DESCRIPTION: The modern management of traumatic brain injury (TBI) is ever-changing and complex. Current clinical trials are demonstrating new science while at the same time raising new controversies in the neurosurgical treatment of TBI. New technologies such as new monitoring devices and techniques are improving the neurosurgeon's ability to take care of TBI patients. New and changing guidelines on TBI are important to every neurosurgeon. This course will cover current clinical trials, new technologies and monitoring, and the most up-to-date guidelines. This course will be of interest not only to the neurosurgeon who takes care of TBI on a daily basis, but also to the general neurosurgeon who will want to learn the most up-to-date guidelines and management strategies for TBI.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe current clinical trials in traumatic brain injury.
- ▷ Discuss new technologies and monitoring for traumatic brain injury.
- ▷ Analyze the most up-to-date guidelines on traumatic brain injury.

SOCIOECONOMIC
12:30–4:00 pm Fee: \$450

PC28 2015 CPT Coding Update

COURSE DIRECTORS: Alexander Mason, John K. Ratliff
FACULTY: Kim Pollock, Luis M. Tumialan, Henry H. Woo
COURSE DESCRIPTION: This course summarizes the anticipated CPT 2015 coding changes and also reviews the 2014 coding changes that affect neurosurgeons.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Apply new and revised CPT coding concepts to key neurosurgical and reporting services with CPT codes and modifiers in order to effectively protect surgical and evaluation/management reimbursement.
- ▷ Strategize how to avoid compliance issues with regard to new regulations.

SOCIOECONOMIC
12:30–4:00 pm Fee: \$450

PC29 What Are You Worth? The Art of Hospital Negotiation from the Experts—Getting the Best Deal

COURSE DIRECTOR: Troy D. Payner
FACULTY: James I. Ausman, James M. Ecklund, Stephen Papadopoulos, James T. Rutka, Ann R. Stroink
COURSE DESCRIPTION: This course will teach you the critical tools you need to effectively negotiate with your hospital administration. These strategies will also prove invaluable in many other negotiation environments.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the principles of negotiation.
- ▷ Identify specific methods of maximizing chances of achieving goals during a negotiation.

General Scientific Session I

Sunday, September 27
4:30–6:30 pm

PRESIDING OFFICER: Russell R. Lonser

MODERATORS: Bernard R. Bendok,
Brian L. Hoh

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss new indications for deep brain stimulation.
- ▷ Explain the latest discoveries in cognitive and behavioral neuroscience and their clinical relevance to Parkinson's, Huntington's, and Alzheimer's disease, as well as traumatic brain injury and depression.
- ▷ Use innovative tools to enhance understanding and analysis of 3-D neuroanatomy in the real time analysis of clinical treatment decision-making.

4:30–4:33 pm
Introduction and Disclosures
Nathan R. Selden

4:33–4:35 pm
Introduction of Professor Trevor Robbins
Nathan R. Selden



4:35–4:58 pm
Featured Speaker
Trevor Robbins

4:58–5:02 pm
Introduction of Turkish Neurosurgical Society President, Zeki Sekerci
Nathan R. Selden

5:02–5:05 pm
Introduction of Turkish Historical Talk
Feridun Acar



5:05–5:20 pm
Turkish Historical Talk: Troy, Cradle of Western Civilization
Yücel Yilmaz

5:20–5:38 pm
A Phase II Study of Deep Brain Stimulation of Memory Circuits for Alzheimer's Disease
Andres M. Lozano

5:38–5:52 pm
CNS Community of Learning: New Innovations

5:52–5:54 pm
Fellowship Award Presentations
Ricardo J. Komotar

5:54–5:56 pm
Executive Committee/ Annual Meeting Committee Acknowledgements
Nathan R. Selden

5:56–6:00 pm
Introduction of Creativity
Lecturer **Herbie Hancock**
Elad I. Levy



6:00–6:30 pm
CNS Michael L.J. Apuzzo Lecturer on Creativity & Innovation
Herbie Hancock

You're Invited!

2015 Opening Reception
Sunday, September 27
6:30–8:30 pm

Gather your friends and colleagues for live jazz music, cocktails, and New Orleans-inspired hors d'oeuvres at the Opening Reception.

Kick off your Annual Meeting experience with this enjoyable networking opportunity.



Program Highlights

Monday, September 28

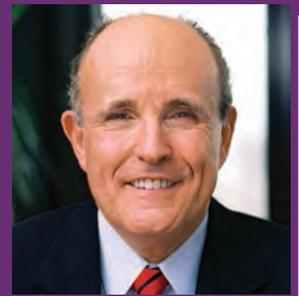
Exhibit Hall open from 11:00 am-4:45 pm

10:18-10:58 am

Walter E. Dandy Orator

Rudy Giuliani

107th Mayor of New York City



2:30-4:00 pm

HOT TOPICS

Hot Topics 1: **Optimal Management for a Single Intracranial Metastasis: Radiation or Surgery?**

Hot Topics 2: **Cervical and Lumbar Adjacent Level Breakdown: Fusion or Not?**

2:30-4:00 pm

CONTROVERSY SESSION 1

ICH Management: Minimally Invasive to Decompressive Craniectomy Surgical Intervention



4:30-5:45 pm

CONSENSUS SESSION I

Guidelines for the Management of Unruptured Intracranial Aneurysms

- ▷ Natural History, Risk Factors, and Diagnosis
- ▷ Surgical Clipping
- ▷ Endovascular Treatment
- ▷ Impact of High Procedure Volumes and Future Registry Development



7:00–8:30 AM SECTION SESSIONS AND SECTION ORAL PRESENTATIONS

**COUNCIL OF STATE
NEUROSURGICAL SOCIETIES**

**I Thought Someone Else Would
Take Care of It**

MODERATORS: Shelly D. Timmons, Gregory R. Trost
SPEAKERS: James R. Bean, Joseph S. Cheng, Cathy J. Hill, John K. Ratliff, Shelly D. Timmons
LEARNING OBJECTIVES: Upon completion of this course, participants should be able to:

- ▷ Identify opportunities for involvement (national, state, local/hospital).
- ▷ Outline the protocol for testifying in front of a state panel.

7:00–7:20 am
Working with Regulators
Cathy J. Hill, John K. Ratliff

7:20–7:40 am
Testifying in Congress
James R. Bean

7:40–8:00 am
Putting Out Fires
Joseph S. Cheng

8:00–8:20 am
Working with your State
Shelly D. Timmons

8:20–8:30 am
Questions and Discussion

**SECTION ON
CEREBROVASCULAR SURGERY**

**Mentorship: Service, Education,
Progress**

MODERATORS: Adam Arthur, Brian Jankowitz
SPEAKERS: Rocco Armonda, Brian L. Hoh, Sean D. Lavine, Elad I. Levy, J. D. Mocco, Peter Nakaji, Neil A. Martin, Erol Veznedaroglu
LEARNING OBJECTIVES: Upon completion of this course, participants should be able to:

- ▷ Discuss effective mentorship in vascular neurosurgery.
- ▷ Integrate educational efforts within the field.
- ▷ Detail ways in which vascular neurosurgeons can serve the community.
- ▷ Describe new progress in the treatment of aneurysms, AVMs, and ischemic stroke.

7:00–7:10 am
Mentorship in Vascular Neurosurgery
Elad I. Levy

7:10–7:20 am
Education in Vascular Neurosurgery
Erol Veznedaroglu

7:20–7:30 am
**How Can Vascular Neurosurgeons
Serve?**
Rocco Armonda

7:30–7:40 am
**Progress in the Treatment of Brain
Aneurysms**
Brian L. Hoh

7:40–7:50 am
Progress in the Treatment of AVMs
Peter Nakaji

7:50–8:00 am
**Progress in the Treatment of Ischemic
Stroke**
J. D. Mocco

8:00–8:05 am
Introduction of the Drake Lecturer
Sean D. Lavine

8:05–8:30 am
DRAKE LECTURE
**Chasing Perfection in Care for
Intracerebral Hemorrhage Through
Surgical Innovation and Clinical Process
Re-engineering**
Neil A. Martin

**SECTION ON DISORDERS OF THE
SPINE AND PERIPHERAL NERVES**

**Advancements In Spinal Surgery
Outcomes: The Results Of
Collaboration**

MODERATORS: John J. Knightly, Frank La Marca
SPEAKERS: Peter D. Angevine, Joseph S. Cheng, Domagoj Coric, Michael W. Groff, R. John Hurlbert, Praveen V. Mummaneni, Paul Park, Daniel M. Sciubba, Michael Y. Wang
COURSE DESCRIPTION: This course will explore the current evidence-based data regarding surgical outcomes of spinal surgery for various pathological conditions and surgical approaches, providing neurosurgeons with the opportunity to expand their knowledge of what their patients can expect based on the most up-to-date treatment options available. The value of spinal surgery will also be discussed as it pertains to the current climate of performance accountability and conflict management.
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss expected surgical outcomes, conflict management and the value of various spinal surgery treatments with their patients, hospital employers and with third party payers.

7:00–7:10 am
**Outcomes of Various Surgical
Techniques in the Treatment of Cervical
Spondylotic Disease**
Praveen V. Mummaneni

7:10–7:20 am
**Outcomes of Adult Spinal Deformity
Surgery**
Peter D. Angevine

7:20–7:30 am
**Outcomes of Minimally Invasive
Deformity Surgery**
Paul Park

7:30–7:40 am
**Outcomes of Spinal Surgery for
Metastatic Disease**
Daniel M. Sciubba

7:40–7:50 am
**Outcomes of Spinal Surgery for
Degenerative Lumbar Disease**
Michael W. Groff

7:50–8:00 am
**Advancements in Biologics and Implant
Technology: Effects on Spinal Surgery
Outcomes**
Michael Y. Wang

8:00–8:10 am
**Healthcare Cost Containment Strategies:
Effects on Patient Service and Surgical
Outcomes**
Domagoj Coric

8:10–8:20 am
**Orthopedics, Neurosurgery, Academia,
and Industry: Effects on Spine Surgery
Training**
R. John Hurlbert

8:20–8:30 am
**Importance of Multicenter Outcome
Trials for the New Healthcare Era**
Joseph S. Cheng

**SECTION ON NEUROTRAUMA AND
CRITICAL CARE**

Contentious Issues in Neurotrauma

MODERATORS: Daniel J. Hoh, Parham Yashar
SPEAKERS: Randall M. Chesnut, Ramon Diaz-Arrastia, R. John Hurlbert, Geoffrey T. Manley, Raj K. Narayan, Jamie S. Ullman
LEARNING OBJECTIVES: Upon completion of this course, participants should be able to:

- ▷ Discuss multimodality monitoring in the patient with severe traumatic brain injury, and what role such monitoring may play in contemporary management.
- ▷ Integrate current evidence for or against the use of methylprednisolone in patients with incomplete spinal cord injury into their practice.



7:00–7:25 am

Controversy: Methylprednisolone in Incomplete Spinal Cord Injury: Contraindicated or Helpful?

7:00–7:10 am

Contraindicated

R. John Hurlbert

7:10–7:20 am

Helpful

Geoffrey T. Manley

7:20–7:25 am

Discussion

7:25–7:50 am

Controversy: Multimodality Monitoring for Severe Traumatic Brain Injury: New Standard or Passing Fad

7:25–7:35 am

Pro

Ramon Diaz-Arrastia

7:35–7:45 am

Con

Randall M. Chesnut

7:45–7:50 am

Discussion

7:50–7:55 am

Introduction of the Marmarou Lecturer

Jamie S. Ullman

7:55–8:25 am

MARMAROU LECTURE

Traumatic Brain Injury—Where Next?

Raj K. Narayan

8:25–8:30 am

Questions

SECTION ON PAIN

Innovations in Surgery for Pain

MODERATORS: Jason M. Schwalb,

Jonathan Miller

SPEAKERS: W. Jeffrey Elias, Sameer A. Sheth,

Jonathan Miller

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

- ▷ List important areas for further knowledge development and research in the neurosurgical treatment of pain.
- ▷ Identify the most important ongoing clinical trials.

7:00–7:15 am

Indications, Target, and Stimulation Paradigms

Jonathan Miller

7:15–7:30 am

Focused Ultrasound for Pain

W. Jeffrey Elias

7:30–7:45 am

Laser Surgery for Pain

Sameer A. Sheth

7:45–8:30 am

Section on Pain Oral Presentations

MODERATORS: Jonathan Miller,

Jason M. Schwalb

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

- ▷ Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 47 for Oral Papers 124–128.

SECTION ON PEDIATRIC NEUROLOGICAL SURGERY

Clearance of The Pediatric Cervical Spine

MODERATORS: Douglas L. Brockmeyer,

James M. Johnston

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

- ▷ Recognize and treat common traumatic pediatric cervical spine injuries such as atlanto-occipital dislocation and sub-axial ligamentous instability.
- ▷ Describe age-related variations in craniocervical anatomy and biomechanics.
- ▷ Work within a trauma system to develop protocols for pediatric cervical spine clearance.

SECTION ON STEREOTACTIC AND FUNCTIONAL NEUROSURGERY

Biological Neuromodulation: Gene and Stem-cell Therapies

MODERATORS: Robert E. Gross, Peter Konrad

SPEAKERS: Michael Gordon Kaplitt,

Parag G. Patil

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the most recent advances in genetic approaches to neurological disorders.
- ▷ Describe the most recent advances in stem-cell approaches to neurological disorders.
- ▷ Describe the most recent advances in optogenetic approaches to neurological disorders.

7:00–7:20 am

Gene and Optogenetic Therapies: Past, Present, and Future

Michael Gordon Kaplitt

7:20–7:40 am

Stem Cell Therapies for Degenerative Neurological Disorders

Parag G. Patil

7:40–7:45 am

Discussion

7:45–8:30 am

Section on Stereotactic and Functional Neurosurgery Oral Presentations

MODERATORS: Robert E. Gross, Peter Konrad

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 47 for Oral Papers 129–133.

SECTION ON TUMORS

Oral Presentations

MODERATORS: Bob S. Carter, Allen Waziri

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See pages 47–48 for Oral Papers 134–143.



WOMEN IN NEUROSURGERY

Mentorship and Innovation in Neurosurgery

MODERATOR: Uzma Samadani

SPEAKERS: William T. Couldwell, L. Nelson Hopkins

SESSION DESCRIPTION: Innovation is said to require a unique blend of ingenuity, energy, and fearlessness. We all have ideas, but how do we turn them into useful services and products that can be shared with the community? In this session find out from two surgeon-scientist-innovators how to take your brilliant idea from purple ink drawing on the OR drapes to

prototype and then reality. Successful academicians Drs. Nick Hopkins and Bill Couldwell will talk about innovation, entrepreneurship, and commercialization of technology. What do women in neurosurgery have to do with innovation? To begin: both are longshots for success. A woman who applied to medical school in 1995, had a 1 in 2,472 chance of becoming a board certified neurosurgeon by 2013. The average startup begun in 1995 has about a 10% chance of still being viable in 2015. What does it take to succeed against all odds? Ask a female neurosurgeon! This session will be

complemented by our evening reception featuring industry leaders advising on what it takes to interest strategic partners in your technology.

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the various approaches to commercializing their neurosurgical invention(s) or idea(s).
- ▷ Outline the challenges, risks, and likelihood of success associated with commercialization of neurosurgical technology.

General Scientific Session II

Monday, September 28
9:00–11:30 am

PRESIDING OFFICER: Zoher Ghogawala

MODERATORS: James S. Harrop, Steven N. Kalkanis, Elad I. Levy

- LEARNING OBJECTIVES:** Upon completion of this course, participants will be able to:
- ▷ Describe how changes in health care economics, funding, and training manpower will impact the practice of neurosurgery.
 - ▷ Explain the advantages and disadvantages of open surgery with mapping vs. laser ablation for deep seated tumors.
 - ▷ Discuss the evolution of contemporary targeting for deep brain stimulation.

9:00–9:03 am
Introductions and Disclosures
Zoher Ghogawala

9:03–9:08 am
Introduction of Honored Guest
Nathan R. Selden



9:08–9:23 am
Honored Guest Lecture: DBS Targets, Technology and Trials: Two Decades of Progress
Kim J. Burchiel

9:23–9:25 am
CNS Community of Learning: New Innovations

9:25–9:37 am
CNS RESIDENT AWARD Cigarette Smoke Initiates Oxidative Stress-Induced Phenotypic Modulation Leading to Cerebral Aneurysm Formation and Rupture
Robert M. Starke

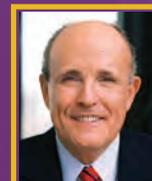
9:37–9:39 am
Introduction of Atul Grover
Krystal Lynne Tomei



9:39–9:55 am
Federal Training Funds, Manpower, and the Future of Specialty Medicine
Atul Grover

9:55–10:15 am
Debate: Laser Ablation vs. Open Surgery for Deep Seated Tumors
Mitchel S. Berger, Gene H. Barnett

10:15–10:18 am
Introduction of Walter E. Dandy Orator Rudy Giuliani
Steven N. Kalkanis



10:18–10:58 am
Walter E. Dandy Oration
Rudy Giuliani

10:58–11:04 am
Introduction of CNS President
Anthony L. Asher



11:04–11:30 am
CNS Presidential Address Mentorship: Service, Education, Progress
Nathan R. Selden



11:30 am–12:30 pm
MORNING SESSION BREAK
Visit the Exhibit Hall!

11:45 am–12:15 pm
LIVE SURGERY IN THE EXHIBIT HALL

All Luncheon Seminars include a plated lunch served in the seminar room.
Luncheon Seminar fee is \$95 each (\$75 for Residents/Fellows/Medical Students/Advance Practice Providers).

MONDAY 28

12:30–2:00 pm

M01 Honored Guest Luncheon

*Complimentary to CNS
Resident members!*

SPEAKER: Kim J. Burchiel

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the barriers and opportunities for neurosurgeons in the new health care system.
- ▷ Explain the role of individualized medicine versus community health analysis and prevention.
- ▷ Describe the importance of leadership and managerial skills for neurosurgeons.

M02 Athletic Head Injuries: Return to Play

MODERATOR: Richard G. Ellenbogen

FACULTY: Julian E. Bailes, Tanvir Choudhri, James M. Johnston, Russell R. Lonser

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain the potential consequences of athletic head injuries.
- ▷ Identify the signs and symptoms of concussion.
- ▷ Discuss issues related to return to play after athletic head injury.

M03 Case-based Review for MOC

MODERATORS: Ashok R. Asthagiri, Nader Pouratian

FACULTY: Tord D. Alden, Aruna Ganju, Mark N. Hadley, Brian L. Hoh, Mark E. Shaffrey

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Review key high-yield topics for the ABNS MOC exam.
- ▷ Define the scope of material that is examined on the ABNS MOC exam.
- ▷ Identify critical learning resources for review for the ABNS MOC exam.

M04 Guidelines for Diagnosis and Treatment of Degenerative Lumbar Spinal Disease

MODERATOR: John Pollina

FACULTY: Sukru Caglar, Zoher Ghogawala, Praveen V. Mummaneni, Daniel K. Resnick, Daniel M. Sciubba

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Assess the current literature on surgical treatment of degenerative lumbar spine disease.
- ▷ Analyze the indications and expected outcomes for various lumbar spine surgical procedures to improve their treatment plans.

M05 Controversies in Spinal Surgery: Case-based Interactive Discussions

MODERATORS: Christopher I. Shaffrey, John C. Liu

FACULTY: Mokbel K. Chedid, Ziya L. Gokaslan, Patrick C. Hsieh, Jesus Lafuente, Nicholas Theodore

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Review innovative options for managing difficult spinal pathologies.
- ▷ Discuss current controversies in spinal surgery.
- ▷ Review recent spine surgery guidelines.

NEW

M06 Managing and Preventing Intraoperative Vascular Complications

MODERATORS: Melih Bozkurt, Carlos A. David, Robert H. Rosenwasser

FACULTY: Alan S. Boulos, Justin S. Cetas, Fady T. Charbel, Andrew J. Ringer, Daniel L. Surdell, Ibrahim M. Ziyal

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify microsurgical options for preventing and managing intraoperative vascular complications.
- ▷ Describe scenarios which are high risk for intraoperative vascular complications.
- ▷ Discuss endovascular options for intraoperative vascular complications.

NEW

M07 Management of Peripheral Nerve Pain Syndromes

MODERATOR: Line Jacques

FACULTY: Allan J. Belzberg, Shaun T. O'Leary, Konstantin V. Slavin, Christopher J. Winfree

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss clinical manifestations of peripheral nerve syndromes.
- ▷ List diagnostic approaches to peripheral nerve syndromes.
- ▷ Describe techniques to manage peripheral nerve syndromes.

M08 Pituitary Adenomas: Operative Nuances, Innovations, and Management Considerations

MODERATORS: James J. Evans, Edward R. Laws

FACULTY: Manish Kumar Agbi, James P. Chandler, Fred Gentili, Naresh P. Patel, Jack P. Rock, Hakan Seckin

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Outline the roles of medical, radiation, and surgical treatment for secretory and non-secretory pituitary adenomas.
- ▷ Describe the medical, imaging, and laboratory evaluation for various pituitary adenomas.
- ▷ Explain the surgical nuances of pituitary adenoma resection.



SANS
ANNUAL MEETING

SANS supplemental exam is available for this course for an additional \$15.

M09 Managing Challenging Pediatric Neurosurgical Diseases: Interactive Case-based Discussion

MODERATOR: Karin M. Muraszko

FACULTY: Nejat Akalan, Frederick A. Boop, Ruth E. Bristol, Alan R. Cohen, Veetai Li, James T. Rutka

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the natural history and indications for treating pediatric neurosurgical diseases.
- ▷ Outline risk avoidance strategies in managing pediatric neurosurgical diseases.
- ▷ Describe the latest techniques and guidelines in managing pediatric neurosurgical pathologies.

NEW



SANS
ANNUAL MEETING

SANS supplemental exam is available for this course for an additional \$15.

MTO Multidisciplinary Management Strategies for Brain AVMs

MODERATORS: Neil A. Martin,

Jacques J. Morcos, Erkin Ozgiray

FACULTY: Adam S. Arthur, Kevin M. Cockroft, Jason P. Sheehan, Adnan H. Siddiqui, Miroslav J. Vukic

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Interpret natural history data pertaining to brains AVMS.
- ▷ Discuss the indications, risks and benefits of radiosurgical, microsurgical, and endovascular approaches to brain AVMS.
- ▷ Outline multidisciplinary approaches to management strategies for brain arteriovenous malformations.

NEW

MIT Leadership in Neurosurgery

MODERATORS: H. Hunt Batjer, John K. Ratliff

FACULTY: Moustapha Abou-Samra, Anthony L. Asher, Elad I. Levy, Fredric B. Meyer, John H. Sampson, Alan M. Scarrow,

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Outline the variety of leadership options available to neurosurgeons.
- ▷ Discuss the diverse paths that may lead to success as a neurosurgical leader.
- ▷ Define the unique attributes that foster success in neurosurgical leaders.



2:00–2:30 pm

AFTERNOON SESSION BREAK

Visit the Exhibit Hall!

2:30–4:00 pm

CNS Resident SANS Challenge Preliminary Round



2:30–4:00 pm

CONTROVERSY SESSION 1

ICH Management: Minimally Invasive to Decompressive Craniectomy Surgical Intervention

MODERATOR: Rocco Armonda

SPEAKERS: Travis Michael Dumont, William J. Mack, J D. Mocco

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the role for selected minimally invasive, image-guided endoscopic management for deep-seated Basal Ganglionic ICH/IVH.
- ▷ Explain the pathophysiology of spontaneous ICH and subsequent edema and neurologic deterioration.
- ▷ Discuss anatomy and pathophysiology of increased intracranial pressure and the rationale of hemicraniectomy decompressions.
- ▷ Illustrate the dimensions of appropriate sized hemicraniectomy.
- ▷ Differentiate timing and intervention for stroke and trauma patients.



2:30–4:00 pm

HOT TOPICS 1

Optimal Management for a Single Intracranial Metastasis: Radiation or Surgery?

MODERATOR: Michael William McDermott

SPEAKERS: Frederick F. Lang, Mark E. Linskey

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss variable approaches to single intracranial metastasis.
- ▷ Differentiate different approaches based on anatomic location, tumor histology, and other concurrent treatments.



2:30–4:00 pm

HOT TOPICS 2

Cervical and Lumbar Adjacent Level Breakdown: Fusion or Not?

MODERATOR: Edward C. Benzel

SPEAKERS: Domagoj Coric, Regis W. Haid, David O. Okonkwo, William Charles Welch

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain the role of sagittal alignment on the development of adjacent level disease.
- ▷ Discuss anatomy and pathophysiology of adjacent level disease and the rationale of decompression and/or fusion.
- ▷ Outline treatment option and advantages/disadvantages of each approach.

2:30–2:50 pm

Lumbar: Repeat Fusion

David O. Okonkwo

2:50–3:10 pm

Lumbar: Lami or Arthroplasty

Domagoj Coric

3:10–3:30 pm

Cervical: Repeat Fusion

William Charles Welch

3:30–3:50 pm

Cervical: Lami or Arthroplasty

Michael Y. Wang

3:50–4:00 pm

Questions and Discussion



4:00–4:30 pm

AFTERNOON SESSION BREAK

Visit the Exhibit Hall!



4:30 pm–5:45 pm

CONSENSUS SESSION 1

Guidelines for the Management of Unruptured Intracranial Aneurysms

MODERATOR: Byron Gregory Thompson

SPEAKERS: Sepideh Amin-Hanjani, Kevin M. Cockroft, E. Sander Connolly, Christopher S. Ogilvy, Byron Gregory Thompson

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the indications for the treatment of unruptured cerebral aneurysms.
- ▷ Outline the risks and limitations of treatment options for unruptured aneurysms.
- ▷ Integrate the literature into their aneurysm management practice.

4:30-4:45 pm
Natural History, Risk Factors, and Diagnosis
Kevin M. Cockroft

4:45-5:00 pm
Surgical Clipping
Sepideh Amin-Hanjani

5:00-5:15 pm
Endovascular Treatment
Christopher S. Ogilvy

5:15-5:30 pm
Impact of High Procedure Volumes and Future Registry Development
E. Sander Connolly

5:30-5:45 pm
Summary and Final Recommendations Review
Byron Gregory Thompson

 4:30-5:45 pm
**3-D NEUROSURGERY SESSION
Techniques to Advance the Safety and Efficacy of Microneurosurgery**

MODERATORS: Mustafa K. Baskaya, Paul A. Gardner
SPEAKERS: Bernard R. Bendok, William T. Couldwell, Michael T. Lawton, Jacques J. Morcos, Stephen E. Sullivan
COURSE DESCRIPTION: This course will review the important technical and anatomic nuances for the successful management of complex cranial cases. Information will be delivered through 3-D high definition surgical videos and step-by-step discussion by experts in the field. Topics to be reviewed include surgical techniques and anatomy for both cranial and spinal vascular and neoplastic lesions.
LEARNING OBJECTIVES: Upon completion of this course, participants should be able to:

- ▷ Discuss the management of complex cranial cases.
- ▷ Discuss the management of complex spinal cases.
- ▷ Explain relevant anatomy of complex cranial cases.
- ▷ Incorporate new techniques and management strategies into their surgical practice.

4:45-6:00 pm
INTERNATIONAL NEUROSURGICAL FORUM
MODERATORS: Manish Kumar Aghi, Rezi Dashti, Gordon Li
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the findings of neurosurgical studies from around the world.
- ▷ Critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.

7:00-9:30 pm
DINNER SEMINAR
DIN03: GBM: Are Novel Paradigms Establishing a New Standard?

Dinner Seminar

Complimentary shuttle service will be provided for all dinner seminars. Shuttles will depart from and return to the Hilton Riverside hotel.



Arnaud's

Located steps off Bourbon Street in the heart of the French Quarter, Arnaud's spans an entire block and offers classic Creole cuisine and exemplary service in its 15 beautifully restored turn-of-the-century dining rooms. Since its inception in 1918, Arnaud's has remained true to its traditions and courtesies.

Accolades: Named "Best Classic New Orleans Restaurant" by Frommer's and "Best Places for New Orleans' Most Iconic Dishes" by Forbes Travel Guide.

Monday, September 28 7:00-9:30 pm Fee: \$190

DIN03: GBM: Are Novel Paradigms Establishing a New Standard?

MODERATOR: Ricardo Komotar
SPEAKERS: Shawn L. Hervey-Jumper, Tom Mikkelsen, Maciej M. Mrugala, John H. Sampson
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss novel treatment options for patients with newly diagnosed and recurrent GBM.
- ▷ Describe novel imaging, clinical, and genomic biomarkers that may help predict outcome in malignant glioma.
- ▷ Outline relative benefits, risks, and indications for reoperation in the setting of GBM recurrence.

AGENDA

- 7:00-7:30 pm **Outcome Prediction Utilizing Imaging, Clinical, and Genomic Biomarkers**
Tom Mikkelsen
- 7:30-8:00 pm **Reoperation for Recurrent High-grade Glioma: When is it Indicated?**
Shawn L. Hervey-Jumper
- 8:00-8:30 pm **Clinical Experience with the NOVO TFF-100A System for Glioblastoma**
Maciej M. Mrugala
- 8:30-9:00 pm **Immunotherapy Update**
John H. Sampson
- 9:00-9:30 pm **Discussion**



MicroVention welcomes all attendees to the
2015 CNS Annual Meeting, New Orleans, Louisiana

**MicroVention is dedicated to the development of
innovative endovascular technologies.**

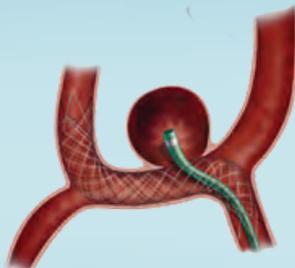


*Occlusion Balloon
Catheter*

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Deliverability, Versatility and Control*



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Please visit MicroVention's Booth #709 during the CNS Annual Meeting.

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or to order MicroVention products at: +1.800.990.8368 or www.microvention.com.**

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*Humanitarian Device Exemption (HDE):

Authorized by Federal Law for use with bare platinum embolic coils for the treatment of unruptured, wide neck (neck \geq 4 mm or dome to neck ratio $<$ 2), intracranial, saccular aneurysms arising from a parent vessel with a diameter \geq 2.5 mm and \leq 4.5 mm. The effectiveness of this device for this use has not been demonstrated.

Program Highlights

Tuesday, September 29

Exhibit Hall open from 11:00 am–4:45 pm

7:00–8:30 am

Section Sessions and Section Oral Presentations



11:00–11:30 am

John Thompson History of Medicine Lecture

Juan Williams

Journalist, Political Analyst

2:30–4:00 pm

**CNS Resident SANS Challenge
Championship Round**



4:30–5:45 pm

Neurosurgical Forum

5:45–6:45 pm

**Resident Recruitment
Social**





7:00–8:30 AM SECTION SESSIONS AND SECTION ORAL PRESENTATIONS

**COUNCIL OF STATE
NEUROSURGICAL SOCIETIES****Oral Presentations**

MODERATORS: Jeremy Todd Phelps,
Cara L. Sedney

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

- ▷ Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See pages 48–49 for Oral Papers 144–153.

**SECTION ON
CEREBROVASCULAR SURGERY****Oral Presentations**

MODERATORS: Alan S. Boulos, Henry H. Woo

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 49 for Oral Papers 154–163.

**SECTION ON DISORDERS OF THE
SPINE AND PERIPHERAL NERVES****Oral Presentations**

MODERATORS: Praveen V. Mummaneni,
Christopher I. Shaffrey

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See pages 49–50 for Oral Papers 164–173.

**SECTION ON NEUROTRAUMA AND
CRITICAL CARE****Oral Presentations**

MODERATORS: Gregory J. Murad,
Craig H. Rabb

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 50 for Oral Papers 174–183.

SECTION ON PAIN**History of Pain Surgery—
What's Old Is New Again**

MODERATORS: Erika A. Petersen, Ashwin
Viswanathan

SPEAKERS: Parag G. Patil, Raymond F. Sekula,
Konstantin V. Slavin

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

- ▷ Discuss development patterns of surgical therapies for pain in the past.
- ▷ Identify previous therapies used in the treatment of pain that may warrant reinvestigation.

7:00–7:15 am

Nashold's Contributions to Pain Surgery
Parag G. Patil

7:15–7:30 am

Evolution of Surgery for Facial Pain
Raymond F. Sekula

7:30–7:45 am

History of Neurosurgery for Cancer Pain
Konstantin V. Slavin

7:45–8:30 am

Section on Pain Oral Presentations

MODERATORS: Erika A. Petersen,
Ashwin Viswanathan

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See pages 50–51 for Oral Papers 184–188.

**SECTION ON PEDIATRIC
NEUROLOGICAL SURGERY****Oral Presentations**

MODERATORS: Jay Riva-Cambrin,
Eric M. Thompson

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 51 for Oral Papers 189–198.

**SECTION ON STEREOTACTIC AND
FUNCTIONAL NEUROSURGERY****The Cost Effectiveness of
Neuromodulation in The Real World**

MODERATORS: Aviva Abosch, Andre Machado

SPEAKERS: Peter Konrad, Julie G. Pilitsis

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe strategies and considerations for building a cost-effective DBS and/or Pain Neuromodulation practice in the United States.

7:00–7:20 am

**Building a Cost-Effective Practice in DBS
for Movement Disorders**

Peter Konrad

7:20–7:40 am

**Building a Cost-Effective Practice in Pain
Neuromodulation**

Julie G. Pilitsis

7:40–7:45 am

Discussion

7:45–8:30 am

**Section on Stereotactic and
Functional Neurosurgery Oral
Presentations**

MODERATORS: Aviva Abosch, Andre Machado

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

- ▷ Analyze the findings of novel neurosurgical studies; critique the design and methodology of these studies.
- ▷ List important areas for further knowledge development and research.
- ▷ Identify the most important ongoing clinical trials.

See page 51 for Oral Papers 199–203.



SECTION ON TUMORS

Management of Recurrent GBM

MODERATORS: Steven Kalkanis, Michael Lim

SPEAKERS: Gene H. Barnett, Henry Brem, Lawrence Kleinberg, David A. Reardon, Jeffrey S. Weinberg

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

- ▷ Discuss the role and timing of surgery for patients with recurrent GBM.
- ▷ Outline the role and timing for chemotherapy and or Avastin for patients with GBM.
- ▷ Describe the role and timing of radiation for patients with GBM.
- ▷ Explain the role and timing of Gliadel and lasers for patients with GBM.

7:00–7:15 am

When to Operate

Jeffrey S. Weinberg

7:15–7:30 am

When to Give Avastin vs. Chemo

David A. Reardon

7:30–7:45 am

When to Re-irradiate/SRS

Lawrence Kleinberg

7:45–8:00 am

When to Use Laser

Gene H. Barnett

8:00–8:15 am

When to Use Gliadel

Henry Brem

8:15–8:30 am

Determining Pseudoprogession

David A. Reardon



11:30 am–12:30 pm

MORNING SESSION BREAK

Visit the Exhibit Hall!

11:45 am–12:15 pm

LIVE SURGERY IN THE EXHIBIT HALL

General Scientific Session III

Tuesday, September 29

9:00–11:30 am

PRESIDING OFFICER: Alan M. Scarrow

MODERATORS: Ashok R. Asthagiri, Nicholas C. Bambakidis, Mustafa K. Baskaya

LEARNING OBJECTIVES: Upon completion of this session, participants will be able to:

- ▷ Describe advantages and disadvantages of maximal vs. minimally invasive surgery for the degenerative spine scoliosis patient.
- ▷ Describe the importance of new molecular and genetic analysis in devising targeted personalized medicine approaches for malignant brain tumors.
- ▷ Recognize and discuss the indications for a myriad of treatment options for trigeminal neuralgia.

9:00–9:03 am

Introductions and Disclosures

Alan M. Scarrow

9:03–9:23 am

Debate: Degenerative Scoliosis—Maximally or Minimally Invasive Surgery: What is Best for your Patient?

Richard G. Fessler, Christopher I. Shaffrey

9:23–9:27 am

Introduction of Distinguished Service Award

William F. Chandler

9:27–9:31 am

Introduction of Founder's Laurel

Daniel K. Resnick

9:31–9:35 am

AANS President

H. Hunt Batjer

9:35–9:50 am

Translational Impact from TCGA: From Animal Models to Molecular Tumor Boards

Tom Mikkelsen

9:50–9:52 am

Introduction of Getch Fellowship Winner

Ricardo J. Komotar

9:52–10:02 am

Christopher C. Getch Fellowship

Brian Patrick Walcott

10:02–10:17 am

MIS for Deformity Spine Surgery

Michael Y. Wang



10:17–10:35 am

Honored Guest Lecture: Trigeminal Neuralgia: New Evidence for Origins and Surgical Treatment

Kim J. Burchiel

10:35–10:37 am

CNS Community of Learning: New Innovations

10:37–10:39 am

Introduction of Turkish Neurosurgical Society Vice-President

Aclan Dogan



10:39–10:49 am

Turkish Neurosurgical Society Vice President

Talat Kiris

10:49–10:57 am

State of the Journal

Nelson M. Oyesiku

10:57–11:00 am

Introduction of John Thompson History of Medicine Lecturer

Juan Williams

James S. Harrop



11:00–11:30 am

John Thompson History of Medicine Lecture

Juan Williams

Luncheon Seminars

All Luncheon Seminars include a plated lunch served in the seminar room.
Luncheon Seminar fee is \$95 each (\$75 for Residents/Fellows/Medical Students/Advance Practice Providers).

TUESDAY 29

12:30–2:00 pm

NEW

T12 Management of Unruptured AVMS in Children and Young Adults

MODERATOR: R. Michael Scott

FACULTY: Arthur J. DiPatri, Yusuf Izci, Aman B. Patel, Robert F. Spetzler

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define the epidemiology and clinical manifestations of pediatric AVMS.
- ▷ Outline the diagnostic workup of pediatric AVMS.
- ▷ Explain the multidisciplinary approaches to managing pediatric AVMS.

NEW

T13 Managing Neurovascular Emergencies: Interactive Case-based Discussions

MODERATORS: Michael T. Lawton, Erol Veznedaroglu

FACULTY: Miguel Angel Arraez, Adam S. Arthur, Amir R. Dehdashti, Jacques J. Morcos, Adnan H. Siddiqui

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the management of important neurovascular emergencies.
- ▷ Illustrate recent team-based approaches in managing neurovascular emergencies.
- ▷ Discuss patient-specific approach when dealing with neurovascular emergencies.

T14 Cervical Arthroplasty and Lumbar Motion

MODERATOR: Regis W. Haid

FACULTY: Domagoj Coric, Praveen V. Mummaneni, Michael Y. Wang, Mehmet Zileli

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Analyze the current state-of-the-art cervical disc arthroplasty technology.
- ▷ Discuss lumbar preservation technologies.
- ▷ Determine indications for use of these technologies and potential complications.

 **SANS** ANNUAL MEETING *SANS supplemental exam is available for this course for an additional \$15.*

T15 New Frontiers and Innovations in Radiosurgery

MODERATOR: William A. Friedman

FACULTY: Ajay Niranjani, Selcuk Peker, Bruce E. Pollock

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ List the various imaging tools used to assess radiosurgery responses.
- ▷ Describe the expanded indications and new approaches for brain metastasis radiosurgery.
- ▷ Discuss new concepts in trigeminal neuralgia radiosurgery.
- ▷ Discuss new concepts in epilepsy radiosurgery.
- ▷ Discuss new concepts in behavioral disorder radiosurgery.

T16 Managing Complications in Spine Surgery

MODERATOR: Gregory R. Trost

FACULTY: Ozkan Ates, Michael W. Groff, Patrick W. Hitchon, John Pollina, Christopher I. Shaffrey

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify operative events dictating the need for intraoperative salvage techniques in spinal surgery.
- ▷ Discuss the specific techniques necessary to rectify intraoperative difficulties.

T17 Guidelines for Neurocritical Care Management

MODERATOR: Shelly D. Timmons

FACULTY: Gokhan Akdemir, Leon Levi, Joshua E. Medow, Patricia B. Raksin, Jamie S. Ullman

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Outline their strategies for managing traumatic brain injury.
- ▷ Assess current practice standards, practical issues surrounding management.
- ▷ Identify the unique challenges facing patients with traumatic brain injury.

T18 Advances in the Management of Trigeminal Neuralgia and Facial Pain

MODERATOR: Kim J. Burchiel

FACULTY: Zvi Harry Rappaport, Ahmed M. Raslan, Ali Savas, Richard S. Zimmerman

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Incorporate surgical, percutaneous, radiosurgical, and neuromodulation options for trigeminal neuralgia and facial pain syndromes into practice.
- ▷ Recognize the complications and outcomes with these approaches.

NEW

 **SANS** ANNUAL MEETING *SANS supplemental exam is available for this course for an additional \$15.*

T19 Peripheral Nerve Board Review

MODERATOR: Lynda J. Yang

FACULTY: Amgad S. Hanna, Allan D. Levi, Robert J. Spinner

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the importance of developing a team-based approach in managing peripheral nerve syndromes.
- ▷ Describe different strategies and techniques that can be utilized to manage peripheral nerve syndromes.
- ▷ Create a multidisciplinary approach to dealing with peripheral nerve syndromes.

T20 Guidelines and Innovations in the Management of Intracerebral and Intraventricular Hemorrhage

MODERATOR: Issam A. Awad

FACULTY: E. Sander Connolly, Neil A. Martin, Mario Zuccarello

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss natural history of intracerebral hemorrhage.
- ▷ Identify traditional surgical and new minimally invasive options for management of intracerebral hemorrhage.
- ▷ Interpret indications, outcomes, and complications from these approaches.

NEW

 **SANS** ANNUAL MEETING *SANS supplemental exam is available for this course for an additional \$15.*

T21 Innovations in Brain Tumor Surgery and Adjuvant Treatments: Case-based Discussions

MODERATOR: Mitchel S. Berger

FACULTY: Susan Chang, Robert A. Fenstermaker, James M. Markert, Arlan H. Mintz, Vikram C. Prabhu, Michael A. Vogelbaum

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe multidisciplinary approaches to treating brain tumors.
- ▷ Discuss recent guidelines for managing brain tumors.
- ▷ Outline patient specific approaches to treating complex brain tumors.

12:30–2:00 pm

**LUNCHEON SEMINARS
T12–T21**

(See page 39 for a full listing)
All Luncheon Seminars include a plated lunch served in the seminar room. Luncheon Seminar fees are \$95 each (\$75 for Residents/Fellows/Medical Students/Advance Practice Providers).



**2:00–2:30 pm
AFTERNOON SESSION BREAK**
Visit the Exhibit Hall!

2:30–4:00 pm

**CNS Resident SANS Challenge
Championship Round**

 **2:30–4:00 pm
CONTROVERSY SESSION 2
Spine Controversies: What to Do?**

MODERATORS: Michael G. Fehlings, Ashwini D. Sharan
SPEAKERS: Daniel K. Resnick, Gerald E. Rodts, Joshua M. Rosenow, Michael Y. Wang

2:30–3:15 pm

**Persistent Pain After Lumbar
Laminectomy—SCS vs. Redo Surgery**

MODERATOR: Ashwini D. Sharan
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate varying pain syndromes: radicular vs. neuropathic.
- ▷ Discuss available class I EBM on repeat surgery versus SCS in treatment of lumbar pain.
- ▷ Outline treatment option and advantages/disadvantages of each approach.

2:30–2:50 pm

SCS

Joshua M. Rosenow

2:50–3:10 pm

Repeat Surgery

Daniel K. Resnick

3:10–3:15 pm

Questions and Discussion

3:15–4:00 pm

Timing of Spinal Epidural Abscess

MODERATOR: Michael G. Fehlings
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate epidural abscesses and their pathophysiology in neurologic deterioration.
- ▷ Discuss available literature on operative vs. non-operative management.
- ▷ Outline treatment option and advantages/disadvantages of each approach.

3:15–3:35 pm

Sit on It

Gerald E. Rodts

3:35–3:55 pm

Operate Now

Michael Y. Wang

3:55–4:00 pm

Questions and Discussion

 **2:30–4:00 pm
HOT TOPICS 3**

**“Liquid Biopsy”: Advancements in
Next-generation Personalized Care for
Brain Cancer**

MODERATOR: Ricardo J. Komotar
SPEAKERS: Chetan Bettgowda, Brian V. Nahed
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate non-invasive tumor categorization.
- ▷ Describe how these technologies can influence and impact your clinical practice and treatment algorithms.

 **2:30–4:00 pm
HOT TOPICS 4**

**The Role of LITT (Laser-induced
Thermal Therapy) in Epilepsy**

MODERATOR: Robert E. Gross
SPEAKERS: Nicholas M. Barbaro, Jason M. Schwalb, Richard S. Zimmerman
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate varying the roles of laser therapy in intracranial pathology.
- ▷ Discuss available class I EBM on these treatment options.
- ▷ Outline treatment option and advantages/disadvantages of each approach.



**4:00–4:30 pm
AFTERNOON SESSION BREAK**
Visit the Exhibit Hall!

4:00–5:00 pm

ANNUAL BUSINESS MEETING

 **4:30–5:45 pm
CONSENSUS SESSION 2
Cervical Arthrodesis vs.**

Arthroplasty—To Fuse or Not to Fuse

MODERATOR: Vincent C. Traynelis
SPEAKERS: Edward C. Benzell, Joseph S. Cheng, John K. Ratliff, Michael P. Steinmetz, Vincent C. Traynelis
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify the indications for surgical treatment of cervical disc degeneration.
- ▷ Discuss the advantages and disadvantages of cervical arthroplasty and cervical fusion.

4:30–4:45 pm

**Natural History of Cervical Degenerative
Disc Disease and the Impact of Cervical
Fusion**

Michael P. Steinmetz

4:45–5:00 pm

**Quality of Literature in Cervical
Arthroplasty**

John K. Ratliff

5:00–5:15 pm

**The Optimal Treatment of Single Level
Cervical Disc Herniation is Cervical
Arthroplasty**

Vincent C. Traynelis

5:15–5:30 pm

**The Optimal Treatment of Single Level
Cervical Disc Herniation is ACDF**

Edward C. Benzell

5:30–5:45 pm

**Socioeconomics of Cervical
Arthroplasty: Coverage and Cost**

Joseph S. Cheng

 **4:30–5:45 pm
3-D NEUROSURGERY SESSION**

**A Tribute to Yaşargil: Global
Microsurgery in 3-D**

MODERATORS: Mustafa K. Baskaya, Paul A. Gardner

SPEAKERS: Mustafa K. Baskaya, Fady T. Charbel, Aclan Dogan, Ali F. Krisht, Robert F. Spetzler
COURSE DESCRIPTION: M. Gazi Yaşargil, MD, is hailed as one of the greatest neurosurgeons of the twentieth century. He has defined what is possible in neurosurgery, and then demonstrated how to achieve it, often with instruments of his own design. In this tribute course, experts will demonstrate microneurosurgical principles and techniques set by Yasargil, reviewing the important technical and anatomic nuances for the successful management of complex cranial cases.

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

- ▷ Discuss the management of complex cranial cases.
- ▷ Explain relevant anatomy of complex cranial cases.
- ▷ Incorporate new techniques and management strategies into their surgical practice.

4:30–5:45 pm

NEUROSURGICAL FORUM

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the findings of novel neurosurgical studies.
- ▷ Describe important areas for further research.
- ▷ Identify the most important ongoing clinical trials.

Council of State Neurosurgical Societies

MODERATORS: Clemens M. Schirmer, Stacey Q. Wolfe

Section on Cerebrovascular Surgery

MODERATORS: Edward A.M. Duckworth, Stacey Q. Wolfe

Section on Disorders of the Spine and Peripheral Nerves

MODERATORS: Dean Chou, Daniel J. Hoh, John E. O’Toole

Section on Neurotrauma and Critical Care

MODERATORS: Jack Jallo, Ryan Seiji Kitagawa

Section on Pain

MODERATORS: Sean J. Nagel, Jennifer A. Sweet

Section on Pediatric Neurosurgery

MODERATORS: Sandi Lam, Cormac O. Maher

Section on Stereotactic and Functional Neurosurgery

MODERATORS: Jorge Alvaro Gonzalez-Martinez, Erika A. Petersen

Section on Tumors

MODERATORS: Chetan Bettgowda, Orin Bloch

5:45–6:45 pm

RESIDENT RECRUITMENT SOCIAL

7:00 pm–9:30 pm

DINNER SEMINAR

DIN04: Surgery vs. Conservative Care for Cervical Myelopathy

Dinner Seminar

Complimentary shuttle service will be provided for all dinner seminars. Shuttles will depart from and return to the Hilton Riverside hotel.



Tuesday, September 29

7:00–9:30 pm

Fee: \$190



TUE
29

SANS supplemental exam is available for this course for an additional \$15.

DIN04: Surgery vs. Conservative Care for Cervical Myelopathy

MODERATOR: Michael Y. Wang

SPEAKERS: Muwaffak Abdulhak, Jean-Valery Coumans, Wayne Gluf

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the natural history of cervical spondylotic myelopathy.
- ▷ Develop a matrix for operative treatment of cervical spondylotic myelopathy.

Bourbon House

Dickie Brennan’s Bourbon House is all about local seafood. If it’s not in season, you won’t find it on the menu. Enjoy authentic New Orleans dishes at New Orleans’ premier oyster bar and seafood restaurant. Bourbon House boasts a lively atmosphere with huge picture windows overlooking Bourbon Street. The dining rooms of this famous French Quarter restaurant are indicative of New Orleans’ European heritage, with handcrafted wrought iron and custom millwork.

Accolades: According to USA Today, “Dickie Brennan’s elegant seafood-centric restaurant is proof-positive that you can get good food on Bourbon Street.”

Program Highlights

Wednesday, September 30

Exhibit Hall open from 10:00 am-1:00 pm

7:00-8:00 am

Late Breaking Science



9:58-10:29 am

Featured Speaker

Don Walsh

Explorer, Oceanographer

1:00-2:15 pm

CONTROVERSY SESSION 3

Anticoagulation and Neurosurgery



1:00-2:15 pm

HOT TOPICS

Hot Topics 5: Treatment for Facial Pain (Trigeminal Neuralgia)

Hot Topics 6: How to Stay Relevant Between Cost Pressure, Budgets, and ACOs—A Stepwise Approach

7:00–8:00 am

LATE BREAKING SCIENCE

MODERATOR: Nelson M. Oyesiku

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the implications of the most up-to-date neurosurgical studies.
- ▷ Recognize opportunities for further research or areas of study.

Submissions will be accepted between June 17 and August 3, 2015, at cns.org/abstracts.

General Scientific Session IV

Wednesday, September 30

8:00–10:30 am

PRESIDING OFFICER: Ganesh Rao

MODERATORS: Alexander A. Khalessi, Ashwini D. Sharan, Krystal Lynne Tomei

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss advantages and disadvantages of neuroendovascular surgical intervention for stroke patients.
- ▷ Discuss advantages and disadvantages of endoscopic third ventriculostomy vs. shunting for hydrocephalus in infants.
- ▷ Explain the latest techniques and evidence for minimally invasive spine surgery for deformity.

8:00–8:01 am
Introductions and Disclosures
Ganesh Rao

8:01–8:21 am
Neuroendovascular Surgery for Acute Stroke: All Patients All the Time
Marc Chimowitz, Elad I. Levy

8:21–8:41 am
Debate: First Treatment in Infants with Hydrocephalus: ETV vs. Shunt
Abhaya Vivek Kulkarni, Lissa Catherine Baird

8:41–8:43 am
Announcement of Neurosurgical Forum Winners
Steven N. Kalkanis

8:43–8:45 am
Introduction of Japanese CNS President
Mustafa K. Baskaya

8:45–8:55 am
Japanese CNS Presidential Address
Nobuhiro Mikuni

8:55–8:57 am
Introduction of Brain Tumor Guha Award
Frederick G. Barker II

8:57–9:17 am
Advances in Immunotherapy—Brain Tumor Guha Award
John H. Sampson

9:17–9:32 am
Developing a Spine Outcomes Collaborative
Muwaffak Abdulhak



9:32–9:52 am
Honored Guest Lecture: Neurosurgical Education: A New Paradigm for Curriculum, Core, and Subspecialty Training
Kim J. Burchiel

9:52–9:58 am
Introduction of Don Walsh
Richard Byrne



9:58–10:29 am
Featured Speaker: From the Ends of the Earth to the Deepest Ocean—A Personal Odyssey
Don Walsh

10:29–10:30 am
Closing Remarks
Nathan R. Selden

Luncheon Seminars

All Luncheon Seminars include a plated lunch served in the seminar room.
Luncheon Seminar fee is \$95 each (\$75 for Residents/Fellows/Medical Students/Advance Practice Providers).

WEDNESDAY 30

11:30 am-1:00 pm



SANS supplemental exam is available for this course for an additional \$15.

W22 Guidelines for the Management of Acute Cervical Spine and Spinal Cord Injuries

MODERATOR: Mark N. Hadley
FACULTY: Nader S. Dahdaleh, Sanjay S. Dhall, R. John Hurlbert
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Identify advances in the medical treatment of traumatic spinal cord injury.
- ▷ Determine state-of-the-art surgical management of cervical spine trauma and spinal cord injury.
- ▷ Write protocols for identifying and assessing cervical spine injury in the comatose patient.

W23 Lessons Learned: Avoidance and Management of Complications of Aneurysm Surgery

MODERATOR: Giuseppe Lanzino
FACULTY: Hasan Kocaeli, Ali F. Krisht, Michael T. Lawton, Christopher S. Ogilvy, Andreas Raabe
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the common complications in aneurysm surgery.
- ▷ Describe management of complications occurring during aneurysm surgery.
- ▷ List the different techniques available to manage complications with adjunctive technologies.

W24 Update on Movement Disorders: Novel Targets, Indications, and Approaches

MODERATORS: Parag G. Patil, Ali R. Rezai
FACULTY: Aviva Abosch, Ellen L. Air, Michael Gordon Kaplitt, Jean M. Regis, Konstantin V. Slavin, Zelma HT Kiss
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the indications for deep brain stimulation for movement disorder.
- ▷ Determine outcomes and risks related to deep brain stimulation when assessing their management strategies for the treatment of movement disorders.

W25 Hematology and Coagulation for Neurosurgeons: Dangers and Solutions

MODERATOR: Issam A. Awad
FACULTY: Kadir Erkmén, Alan S. Hoffer, Pascal Jabbour, R. Loch Macdonald
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Recognize that neurosurgeons commonly face acute peri- and intraoperative decisions regarding the diagnosis and management of coagulopathy that are crucial to patient safety and excellent outcomes.
- ▷ Explain important coagulation mechanisms, parameters, indications, and clinical pearls to their current strategy.
- ▷ List important screening guidelines and define the key points of emergency and intraoperative coagulation management.

W26 Peripheral Nerve Entrapment Syndromes: Diagnosis and Management

MODERATOR: Eric L. Zager
FACULTY: Jason H. Huang, Wilson Zachary Ray, Robert J. Spinner
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain the diagnosis and workup of peripheral nerve entrapment syndromes.
- ▷ Identify surgical indications of these syndromes.
- ▷ Discuss complication avoidance in the management of these syndromes.

NEW **W27** Update on Coding in Neurosurgery

MODERATOR: Henry H. Woo
FACULTY: Domagoj Coric, John J. Knightly, John K. Ratliff, Luis M. Tumialan
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Explain recent updates to coding in neurosurgery.
- ▷ Integrate strategies for assuring proper coding.
- ▷ Outline pitfalls in coding.

NEW **W28** Transition to Adult Care for Spina Bifida

MODERATORS: Timothy B. Mapstone, Joseph H. Piatt
FACULTY: Jeffrey P. Blount, David M. Frim, Cory Nourie
LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Describe the challenges encountered with transitions to adult care for spina bifida.
- ▷ Identify clinical manifestations of adults with spina bifida.
- ▷ Integrate management strategies for adults with spina bifida.

LATE BREAKING SCIENCE

Submit your late breaking science to the 2015 CNS Annual Meeting by visiting cns.org/abstracts.

Abstracts will be accepted between June 17 and August 3, 2015.



10:30 am–11:30 pm
MORNING SESSION BREAK
Visit the Exhibit Hall!

10:45–11:15 am
LIVE SURGERY IN THE EXHIBIT HALL

11:30 am–1:00 pm
LUNCHEON SEMINARS
W22–W28

(See page 44 for a full listing)
All Luncheon Seminars include a plated lunch served in the seminar room. Luncheon Seminar fees are \$95 each (\$75 for Residents/Fellows/Medical Students/Advance Practice Providers).



1:00–2:15 pm
CONTROVERSY SESSION 3

Anticoagulation and Neurosurgery

MODERATORS: Pascal Jabbour, Kenneth V. Snyder

SPEAKERS: Issam A. Awad, David M. Hasan, R. Loch Macdonald

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate varying anticoagulation therapies.
- ▷ Review surgical treatment option and strategies of correcting pharmacologically induced coagulopathies.



1:00–2:15 pm
HOT TOPICS 5

Treatment for Facial Pain (Trigeminal Neuralgia)

MODERATOR: James J. Evans

SPEAKERS: Jeffrey A. Brown, Douglas Kondziolka, Oren Sagher

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Define and appreciate varying facial pain syndromes.
- ▷ Explain pathophysiology of treatment modalities.
- ▷ Outline treatment option and advantages/disadvantages of each approach.

1:00–1:15 pm
Percutaneous Treatment of Trigeminal Neuralgia
Jeffrey A. Brown

1:15–1:30 pm
Radiosurgery for Trigeminal Neuralgia
Stephen B. Tatter

1:30–1:45 pm
Microvascular Decompression for Trigeminal Neuralgia
Kim J. Burchiel

1:45–2:00 pm
Neurostimulation for Facial Pain
Oren Sagher

2:00–2:15 pm
Discussion and Questions



1:00–2:15 pm
HOT TOPICS 6

How to Stay Relevant Between Cost Pressure, Budgets, and ACOs—A Stepwise Approach

MODERATORS: John K. Ratliff, Clemens M. Schirmer

SPEAKERS: Clemens M. Schirmer, Steven A. Toms, Erol Veznedaroglu

LEARNING OBJECTIVES: Upon completion of this course, participants will be able to:

- ▷ Discuss the present day evolving medical economics environment.
- ▷ Identify financial variables, cost, and expenses to neurosurgical practice.
- ▷ Explain financial impact of PQRS and other changes.

1:00–1:20 pm
Business School Lite for Residents—A Neurosurgical Practice Simulator
Clemens M. Schirmer

1:20–1:25 pm
Questions and Discussion

1:25–1:45 pm
Your Margin: What do Neurosurgeons Bring to the Table
Steven A. Toms

1:45–1:50 pm
Questions and Discussion

1:50–2:10 pm
Systems of Care: How to Take Over the World
Erol Veznedaroglu

2:10–2:15 pm
Questions and Discussion

Earn additional CME with SANS Supplemental Exams.

Earn one hour of additional CME credit through the supplemental exams available for each of the following courses:

Practical Courses

PC01: Endoscopic and Keyhole Cranial Surgery—Part 1: Keyhole Craniotomy and Endoscopic Assisted Microsurgery (Cadaver Course)

PC02: Brain Tumor Update

PC11: Cervical Spondylotic Myelopathy and Radiculopathy: Treatment Approaches and Options

Luncheon Seminars

M09: Managing Challenging Pediatric Neurosurgical Diseases: Interactive Case Based Discussion

M10: Multidisciplinary Management Strategies for Brain AVMs

T15: New Frontiers and Innovations in Radiosurgery

T19: Peripheral Nerve Board Review

T21: Innovations in Brain Tumor Surgery and Adjuvant Treatments: Case Based Discussions

W24: Update on Movement Disorders: Novel Targets, Indications, and Approaches

Dinner Seminars

DIN04: Surgery vs. Conservative Care for Cervical Myelopathy

Each exam is only \$15, and any Annual Meeting attendee can purchase one or all of the exams, regardless of attendance at the live course.



SANS
ANNUAL MEETING

Abstracts and Oral Presentations

CHOICE ABSTRACTS: SPANNING THE SPECTRUM OF NEUROSURGERY

SUN
27

1:30–1:36 pm

100 Adeno-associated Virus Transduction of Astrocytes Reactivated After Stroke in Adult Canine Brain: An Alternative Viral Vector Worth Pursuing?

Mohammed A Mansi, Holley Hewitt, Sarah Scharber, Molly Greenshields, Sean Moen, Ciro Vasquez, Bharathi Jagadeesan, Andrew W. Grande

1:36–1:42 pm

JULIUS GOODMAN RESIDENT AWARD

101 The Barrow Randomized OR Traffic (BRITE) Trial: The Effect of OR Traffic on Infection Rates

Michael Bohl, Justin C. Clark, Mark E. Oppenlander, Andrew J. Meeusen, Alex Budde, Randall W. Porter, Robert F. Spetzler

1:42–1:48 pm

102 Foot Drop Assessment of Spine Surgeons' Understanding of L5 Radiculopathy vs. Peroneal Neuropathy

Christopher Michael Maulucci, Ravichandra Madineni, George M. Ghobrial, Michelle Hannon, K. Daniel Riew, James S. Harrop

1:48–1:54 pm

103 Expansion Duroplasty Improves Intraspinal Pressure, Spinal Cord Perfusion Pressure and Vascular Pressure Reactivity Index in Patients with Traumatic Spinal Cord Injury

Marios Papadopoulos

1:54–2:00 pm

104 Viability of Second Gamma Knife Radiosurgery vs. Percutaneous Retrogasserian Balloon Compression for Primary Trigeminal Neuralgia

Jose E. Valerio, Andres M. Alvarez-Pinzon, Sam Coy, Marcos Sanchez Gonzalez, Aizik L. Wolf

2:00–2:06 pm

105 Incidence and Predictors of Complications After Bypass Surgery for Pediatric Patients with Moya Moya Disease

Yimo Lin, Dominic Harris, I-Wen Pan, Thomas G. Luerksen, Sandi Lam

2:06–2:12 pm

106 Functional Network Analysis in Surgical Epilepsy Patients Using Magnetoencephalography

Dario J. Englot, Robert C. Knowlton, Edward F. Chang, Heidi E. Kirsch, Srikanth S. Nagarajan

2:12–2:18 pm

107 ReACT: Overall Survival from a Randomized Phase II Study of Rindopepimut (CDX-110) Plus Bevacizumab in Relapsed Glioblastoma

David A. Reardon; James M. Schuster; David Dinh Tran; Karen L. Fink; Louis B. Nabors; Gordon Li, Daniela Annenelie Bota, Rimas Vincas Lukas, Annick Desjardins, Lynn Stuart Ashby, J. Paul Duic, Maciej M. Mrugala, Andrea Werner, Thomas Hawthorne, Yi He, Jennifer Green, Michael Jay Yellin, Christopher D. Turner, Thomas A. Davis, John H. Sampson

2:18–2:24 pm

108 Spatially Different Temporal Filtering with X-Ray Attenuator: A Novel Technique of Dose Reduction in Neuro-vascular Interventions

Ashish Sonig, Swetadri Vasan Setlur Nagesh, Sabareesh Kumar Natarajan, Marshall C. Cress, Stephan Munich, Leonardo Rangel-Castilla, Ciprian Ionita, Daniel Bednarek, Kenneth V. Snyder, L. Nelson Hopkins III, Elad I. Levy, Stephen Rudin, Adnan Hussain Sidd

2:24–2:30 pm

SAMUEL HASENBUSCH YOUNG NEUROSURGEON AWARD

109 The Profile of a Smoker and Its Impact on Outcomes After Cervical Spine Surgery

Raul A Vasquez-Castellanos, Silky Chotai, Joseph Wick, David P. Stonko, Joseph S. Cheng, Clinton J. Devin, Anthony L. Asher, Matthew J. McGirt

2:30–2:36 pm

110 Arthrodesis Versus Revision Discectomy for Recurrent Lumbar Disc Herniation: Patient-reported Outcomes in 417 Patients from the N2QOD Registry

Matthew J. McGirt, Scott L. Parker, Domagoj Coric, Paul Keetae Kim, Kevin Scott Cahill, Clinton J. Devin, Anthony L. Asher

2:36–2:42 pm

111 New Observations in Cerebral Glucose Metabolism Following Traumatic Brain Injury: The Mystery of the Missing Glucose—246 Studies in 74 Patients and Comparison to Normal Controls

Joshua Robert Dusick, Thomas C. Glenn, Paul M. Vespa, Neil A. Martin

2:42–2:48 pm

112 Increasing Rates of Imaging in Failed Back Surgery Syndrome (FBSS) Patients: A 10-Year Perspective

Frank William Petraglia III, S. Harrison Farber, Steven M. Thomas, Frances Wang, Levis Eric Churchill, Shivanand P. Lad

2:48–2:54 pm

113 Bone-only Chiari Decompression Failure Rate Is No Different Than That of Open Duraplasty

Michelle Feinberg, Tiffani DeFreitas, John S. Myseros, Suresh N. Magge, Chima Oluigbo, Robert F. Keating

2:54–3:00 pm

114 Enhancement of Cortical Signals to Improve Brain Machine Interface Performance by Inducing Mirror Neuron Network Activation

Darlene Angela Lobel, Rebecca Achey, Ryan Brennan, Anisha Rastogi, Abidemi B. Ajiboye

3:00–3:06 pm

STRYKER NEURO-ONCOLOGY AWARD

115 Early Versus Late Gamma Knife Radiosurgery Following Transsphenoidal Resection for Nonfunctioning Pituitary Macroadenomas: A Matched Cohort Study

Isaac Jonathan Pomeranec, Robert Dallapiazza, Zhiyuan Xu, John Jane Jr., Jason P. Sheehan

3:06–3:12 pm

116 The Preventive Effect of Sympathectomy on the Prebifurcation Level Middle Cerebral Artery Vasospasm in Subarachnoid Hemorrhage: An Animal Model

Mehmet Resid Onen, Ulas Cikla, Ilhan Yilmaz, Mehmet Dumlu Aydin

3:12-3:18 pm

117 OR Score: Reducing Operating Room Costs Through a Hospital-Wide Price Transparency Initiative

Corinna Clio Zygourakis, Victoria Valencia, Chris Moriates, Sereina Catschegn, Ariana Afshar, Kevin Bozic, Kent Soo Hoo, Andrew Goldberg, Christy Boscardin, Ralph Gonzales, Lawrence H. Pitts, Michael T. Lawton

3:18-3:24 pm

118 Propensity Matched Analysis of Outcomes and Hospital Charges for Anterior Versus Posterior Cervical Fusion for Cervical Spondylotic Myelopathy

Joseph E. Tanenbaum, Daniel Lubelski, Benjamin P. Rosenbaum, Edward C. Benzel, Thomas Mroz

3:24-3:30 pm

119 Progressive Hemorrhagic Injury After Severe Traumatic Brain Injury: Effect of Hemoglobin Transfusion Thresholds

Aditya Vedantam, Jose-Miguel Yamal, Claudia S. Robertson, Shankar Prakash Gopinath

3:30-3:36 pm

120 Efficacy of Radiofrequency Neurotomy for Lumbar Facet Syndrome and Sacroiliac Joint Pain

Ana Isabel Lopes Luis, Miguel Vasconcelos Casimiro, Carla Reizinho

3:36-3:42 pm

121 Gamma Knife Radiosurgery for Arteriovenous Malformations in Pediatric Patients

Alp Ozgun Borcek, Hakan Emmez, M. Koray Akkan, Özgür Öcal, Gökhan Kurt, Sükrü Aykol, M. Kemali Baykaner

3:42-3:48 pm

122 Microsurgical Anatomy of the Nucleus Accumbens

Serhat Sevki Baydin, Kaan Yagmurlu, Necmettin Tanriover, Abuzer Gungor, Albert L. Rhoton Jr.

3:48-3:54 pm

NATIONAL BRAIN TUMOR SOCIETY MAHALEY CLINICAL RESEARCH AWARD

123 Quantitative Volumetric MR Perfusion Identifies a Distinct Vasculogenic Molecular Subtype of Human Glioblastoma Associated with Worse Clinical Outcomes

Achal Singh Achrol, Tiffany Liu, Lex A. Mitchell, Joshua J. Loya, Erick M. Westbroek, Scott Rodriguez, Abdullah Feroze, Steven D. Chang, Daniel Rubin, Griffith R. Harsh

SECTION ON PAIN ORAL PRESENTATIONS I

MON 28

7:45-7:54 am

124 Endoscopic Trigeminal Nucleus Caudalis Doral Root Entry Zone (NC DREZ) Lesioning for Atypical Facial Pain

Shervin Rahimpour, Vipul Patel

7:54-8:03 am

125 Evidence of Thalamic Degeneration Associated with Chronic Back Pain Prior to Spinal Fusion Surgery

Curtis L. Johnson, Hillary Schwarb, Rochelle R. Yambert, William C. Olivero

8:03-8:12 am

126 Determining the Minimally Clinical Important Difference(MCID) in Pain, Quality of Life and Disability for Spinal Cord Stimulation for Failed Neck and Failed Back Syndromes

Alexandra Rose Paul, Vignesh Kumar, Steven G. Roth, M. Reid Gooch, Julie G. Pilitsis

8:12-8:21 am

127 The Association of Pre-operative Narcotic Use on Length of Hospital Stay and One Year Return to Work, Pain, Disability, and Quality of Life After Elective Surgery for Degenerative Spine Disease

Scott L. Parker, Clinton J. Devin, Matthew J. McGirt

8:21-8:30 am

RONALD R. TASKER YOUNG INVESTIGATOR AWARD

128 Peripheral Hypersensitivity to Subthreshold Stimuli Persists After Resolution of Acute Experimental Disc-Herniation Neuropathy and Is Mediated by Heightened TRPV1 Receptor Expression and Activity

Mohammed F. Shamji

SECTION ON STEREOTACTIC AND FUNCTIONAL NEUROSURGERY ORAL PRESENTATIONS I

MON 28

7:45-7:54 am

129 Neurosurgery for OCD: A Neurobiological Framework Based on Cognitive Control and Cingulate Cortex Dysfunction

Sameer A. Sheth, Robert McGovern, Charles B. Mikell

7:54-8:03 am

130 Bilateral Fornix Deep Brain Stimulation for Alzheimer's Disease: Surgical Safety in the ADvance Trial

Francisco A. Ponce, Wael Asaad, Kelly D. Foote, William S. Anderson, Rees Cosgrove, Gordon H. Baltuch, Kara D. Beasley, Donald E. Reymers, Esther S. Oh, Steven D. Targum, Gwenn Smith, Constantine G. Lyketsos, Andres M. Lozano

8:03-8:12 am

131 Human Medial Temporal Lobe Stimulation Between Encoding and Retrieval Selectively Enhances Forgetting

Maxwell B. Merkow, John Burke, Ashwin G. Ramayya, Ashwini D. Sharan, Michael J. Kahana, Michael Sperling

8:12-8:21 am

132 Intraoperative, High-resolution ECoG Mapping in Parkinson's Patients During a Reaching Task Supports a Compensatory Role for Sensorimotor Cortical Oscillations in the Low-dopamine State

Nathan Christopher Rowland, Coralie de Hemptinne, Nicki Swann, Salman Qasim, Svyetlana Miacinovic, Jill L. Ostrem, Robert T. Knight, Philip A. Starr

8:21-8:30 am

133 Bilateral Stimulation of the Amygdala Treats the Anxiety Component of PTSD by Upregulation of the Neuro-peptide Y System

Bradley Dengler, Naomi Sayre, Viktor Bartanusz, David F. Jimenez, Alexander Mark Papanastassiou

SECTION ON TUMORS ORAL PRESENTATIONS

MON 28

7:00-7:09 am

SYNTHES SKULL BASE SURGERY AWARD

134 Comparison of Extent of Tumor Resection and Endocrine Outcomes for Nonfunctioning Pituitary Adenomas of a Less Experienced Surgeon Using a Fully Endoscopic Transsphenoidal Surgery Technique to a Very Experienced Surgeon Using a Microscopic Transsphen

Hasan Zaidi, Michael Bohl, Al-Wala Awad, Kristina Chapple, Laura Knecht, Heidi Jahnke, William L. White, Andrew S. Little

Abstracts and Oral Presentations

7:09–7:18 am

INTEGRA FOUNDATION AWARD

135 Imaging Patterns Predict Patient Survival and Molecular Subtype in Glioblastoma Using Machine Learning Techniques

Jared M. Pisapia, Luke Macyszyn, Hamed Akbari, Xiao Da, V. Pigrish, Mark Andrew Attiah, Yingtao Bi, Sharmistha Pal, Ramana Davaluri, Laura Roccograndi, Nadia Dahmane, George Biros, Ronald L. Wolf, Michel Bilello, Donald M. O'Rourke, Christos Davatzikos

7:18–7:27 am

BRAINLAB NEUROSURGERY AWARD

136 Complete Resection of Contrast Enhancing Tumor Volume Is Associated with Improved Survival in Recurrent Glioblastoma—Results from the DIRECTOR Trial

Bogdana Suchorska, Michael Weller, Ghazaleh Tabatabai, Christian Senft, Peter Hau, Michael Sabel, Ulrich Herrlinger, Ralf Ketter, Uwe Schlegel, Christine Marosi, Guido Reifenberger, Wolfgang Wick, Joerg-Christian Tonn, Hans-Georg Wirsching

7:27–7:36 am

AMERICAN BRAIN TUMOR ASSOCIATION YOUNG INVESTIGATOR AWARD

137 Somatostatin Receptor Expression on VHL-associated Hemangioblastomas Offers Novel Therapeutic Target

Michael Feldman, Martin G. Piazza, Nancy A. Edwards, Abhik Ray-Chaudhury, Dragan Maric, Marsha J. Merrill, Zhengping Zhuang, Prashant Chittiboina

7:36–7:45 am

JOURNAL OF NEURO-ONCOLOGY AWARD

138 Diffusion MRI ADC Mapping of Glioblastoma Edema/Tumor Invasion and Associated Gene Signatures

Pascal O. Zinn, Massumeh Hatami, Rivka R. Colen

7:45–7:54 am

PREUSS AWARD

139 Human Ether-a-Go-Go-Related-1 Gene (hERG) K+ Channel as a Prognostic Marker and Therapeutic Target for Glioblastoma

John S. Kuo, Kelli Briana Pointer, Paul A. Clark, Gail Robertson

7:54–8:03 am

COLUMBIA SOFTBALL CHARITY AWARD

140 A High-throughput in Vitro Drug Screen in a Genetically Engineered Mouse Model of Diffuse Intrinsic Pontine Glioma Identifies BMS-754807 as a Promising Therapeutic Agent

Kyle Gregory Halvorson, Kelly L. Barton, Kristin Schroeder, Katherine Misuraca, Christine Hoeman, Alex Chung, Donna Crabtree, Francisco Cordero, Raj Singh, Ivan Spasojevic, Noah Berlow, Ranadip Pal, Oren Becher

8:03–8:12 am

141 Pre-operative Brain Mapping in Neuro-oncology with Graph Theory Analysis of the Functional Connectome

Michael Hart, Stephen J. Price, John Suckling

8:12–8:21 am

142 Stereotactic Radiosurgery for Medically and Surgically Refractory Acromegaly: Long-term Rates of Remission and Hypopituitarism

Jason P. Sheehan, Mary Lee Vance, Zhiyuan Xu, Chun Po Yen, David Schlesinger, Blair Dodson, Cheng-Chia Lee

8:21–8:30 am

143 The Combination of Anti-TIM-3 and Anti-PD-1 Checkpoint Inhibitors with Focused Radiation Resulted in a Synergistic Anti-Tumor Immune Response in a Preclinical Glioma Model

Jennifer E. Kim, Mira A. Patel, Antonella Mangraviti, Esteban Velarde, Debebe Theodoros, Dimitris Mathios, Christopher Mitchell Jackson, Betty Tyler, Xiaobu Ye, Henry Brem, Drew Pardoll, Michael Lim

COUNCIL OF STATE NEUROSURGICAL SOCIETIES ORAL PRESENTATIONS

TUE
29

7:00–7:09 am

144 Application of Lean Principles to Neurosurgical Procedures: The Case of Lumbar Spinal Fusion Surgery

Jeffrey Steven Raskin, Jesse Jia-Xin Liu, Ahmed M. Raslan, Katherine Holste, John Marquart

7:09–7:18 am

145 A Cost-effectiveness Comparison Between Open Transforaminal and Minimally Invasive Lateral Lumbar Interbody Fusions Using the Incremental Cost-effectiveness Ratio at 2 Year Follow-up

Gurpreet Surinder Gandhoke, Han-Moe Shin, Yue-Fang Chang, Zachary J. Tempel, David O. Okonkwo, Peter C. Gerszten, Adam S. Kanter

7:18–7:27 am

146 Where Does Potential for True Cost Savings Exist Following Elective Surgery for Degenerative Spine Disease?

Scott L. Parker, Silky Chotai, Ahilan Sivaganesan, Clinton J. Devin, Matthew J. McGirt

7:27–7:36 am

147 Oswestry Disability Index Score 3 Months After Elective Lumbar Spine Surgery Does Not Accurately Identify Effective Versus Non-effective Spine Care at 12 Months

Anthony L. Asher, Silky Chotai, Clinton J. Devin, Scott L. Parker, Ahilan Sivaganesan, Frank E. Harell, Nian Hui, Theodore Speroff, Robert Dittus, Matthew J. McGirt

7:36–7:45 am

148 Identification of Weaknesses in Resident Socioeconomic Training: Results of a National Survey by the Council of State Neurosurgical Societies

Debraj Mukherjee, Michael S. Park, Kimon Bekelis, John A. Braca, Chaim B. Colen

7:45–7:54 am

149 Use of Risk Model for Assessment of Residents Perception of Complexity of Surgical Steps: Example of Modular Component Steps of Lumbar Spinal Fusion Surgery

Ahmed M. Raslan, Jeffrey Steven Raskin, Jesse Jia-Xin Liu

7:54–8:03 am

150 The Effect of Day of Surgery and Rehabilitation Utilization on Hospital Length of Stay in Patients Undergoing Elective Meningioma Resection

Christopher A. Sarkiss, James Lee, Joseph Papin, Ye Yao, Eric Karl Oermann, Errol Gordon, Kalmon D. Post, Joshua B. Bederson, Raj K. Shrivastava

8:03–8:12 am

151 The Impact of the 2006 Massachusetts Healthcare Reform on Neurosurgical Procedures and Patient Insurance Status

Nicolas W. Vilelli, Rohit Das, Hong Yan, Jian Zou, Nicholas M. Barbaro

8:12–8:21 am

152 Remote, Continuous Monitoring of Patient Mobility After Discharge: A Marker for 30-Day Readmission

Blake Eaton Samuel Taylor, Trae Robison, Eric Lo, Kyle McCormick, Eliza M. Bruce, Geoffrey Appelboom, E. Sander Connolly Jr.

8:21–8:30 am

153 Hacking Neurosurgical Skills Training: Resident Education on the Cheap

Jason E. Blatt, Rebecca Breese, Edward Yap, Wes Northam, Joshua E. Loewenstein

**SECTION ON CEREBROVASCULAR SURGERY
ORAL PRESENTATIONS**

TUE
29 7:00–7:09 am

154 The Comparative Effects of Recombinant Human Erythropoietin and Darbepoetin-alpha on Cerebral Vasospasm Following Experimental Subarachnoid Hemorrhage in the Rabbit

Hayri Kertmen, Bora Güner, Erdal Resit Yilmaz, Ata Turker Arikok, Mehmet Ali Kanat, Berrin Imge Erguder, Zeki Sekerci

7:09–7:18 am

155 Remote Ischemic Conditioning Improves Neurovascular Outcomes After Intracerebral Hemorrhage in Mice

Cargill H. Alleyne Jr., Kumar Vaibhav, Babak Baban, Nasrul Hoda, Krishnan M. Dhandapani

7:18–7:27 am

SYNTHES CEREBROVASCULAR AWARD

156 Capillary-level Control of Cerebrovascular Tone

Helen S Wei, Izad-Yar D. Rasheed, Takahiro Takano, Hongyi Kang, Katherine M. Reitz, Anna Gershteyn, G. Edward Vates, Maiken Nedergaard

7:27–7:36 am

157 Neurocognitive Decline and Recovery in Patients Undergoing Microsurgical vs. Endovascular Treatment of Unruptured Intracranial Aneurysms

Angi Caveney, Aditya S. Pandey, Scott A Langenecker, Laura Gabriel, J. Alexis Ortiz, Nadia Huq, Runa Bhaumik, Byron Gregory Thompson Jr., Bruno J Giordani, Donna L. Auer, Lewis Morgenstern

7:36–7:45 am

158 Effects of Low-dose Unfractionated Heparin on Early Brain Injury After Subarachnoid Hemorrhage in Mice

Orhan Altay

7:45–7:54 am

159 Mitigating Microglial-mediated Neuroinflammation: The Sur1-Trpm4 Channel Regulates Calcium-sensitive Induction of iNOS

David B. Kurland, Jesse Stokum, Alex Ivanov, Volodymyr Gerzanich, J. Marc Simard

7:54–8:03 am

160 Carotid Stenosis Significantly Delays Reperfusion During Endovascular Treatment of Stroke in the IMS-III Trial

Steven L. Gogela, Todd Abruzzo, Yair Gozal, Andrew J. Ringer, Pooja Khatri, Joseph Broderick, Tom Tomsick

8:03–8:12 am

161 Optogenetic Stimulation of Cerebellar Dentate Nucleus Promotes Persistent Functional Recovery After Stroke

Shunsuke Ishizaka, Michelle Cheng, Aatman M. Shah, Eric Wang, Alex R. Bautista, GuoHua Sun, Gary K. Steinberg

8:12–8:21 am

162 Center-effect in Patient Outcome After Enrollment into Randomized Clinical Trials in Aneurysmal Subarachnoid Hemorrhage

Blessing N.R. Jaja, Tom Schweizer, R. Loch Macdonald

8:21–8:30 am

GALBRAITH AWARD

163 Submaximal Angioplasty for Symptomatic Intracranial Atherosclerosis—A Prospective, Phase I Study

Travis Michael Dumont, Ashish Sonig, Maxim Mokin, Jorge Luis Eller, Grant C. Sorkin, Kenneth V. Snyder, L. Nelson Hopkins III, Elad I. Levy, Adnan H. Siddiqui

SECTION ON DISORDERS OF THE SPINE AND PERIPHERAL NERVES ORAL PRESENTATIONS

TUE
29 7:00–7:09 am

164 Should Spine Surgeons Be Held Accountable for 30-day Readmissions?

Siddhartha Singh, Rodney Sparapani, Marjorie C. Wang

7:09–7:18 am

165 ACDF in the Outpatient Ambulatory Surgery Setting: Analysis of 1000 Consecutive Cases and Comparison to Hospital Inpatient ACDF

Matthew J. McGirt, Melissa Mehrlich, Scott L. Parker, Anthony L. Asher, Tim E. Adamson

7:18–7:27 am

166 Does the Use of Intrawound Vancomycin Decrease the Risk of Surgical Site Infection After Elective Spine Surgery? A Multicenter Analysis

Clinton J. Devin, Alexander R. Vaccaro, Matthew J. McGirt, Silky Chotai, Jim A. Youssef, Douglas Orndorff, Paul M. Arnold, Anthony K. Frempong-Boadu, Isador H. Lieberman, Hiran Seyed Hedayat, Jeffrey Wang, Robert E. Isaacs, Joshua Patt, Kris Radcliff, Kristen Archer-Swygert

7:27–7:36 am

167 What Is the Impact of Obesity in MIS vs. OPEN Surgery for Adult Spinal Deformity?

Paul Park, Praveen V. Mummaneni, Frank La Marca, Kai-Ming G. Fu, Stacie Nguyen, Michael Y. Wang, Juan S. Uribe, Neel Anand, Gregory Mundis, Vedat Deviren, Adam S. Kanter, Richard G. Fessler, Christopher I. Shaffrey, Behrooz A. Akbarnia, Peter G. Passias, Pierce D. Nunley, Dean Chou, Robert Eastlack, David O. Okonkwo

7:36–7:45 am

168 Five Year Results of Two-level Cervical Total Disc Replacement Compared with Anterior Discectomy and Fusion: An Independent Review of a Prospective, Randomized, Controlled Multicenter Investigational Device Exemption Clinical Trial

Domagoj Coric, Todd Albert, Kris Radcliff

7:45–7:54 am

169 Prognostic Factors for Survival in Surgical Series of Symptomatic Metastatic Epidural Spinal Cord Compression: A Prospective North American Multi-Centre Study in 145 Patients

Anick Nater-Goulet, Michael G. Fehlings, Lindsay Tetreault, Branko Kopjar, Paul M. Arnold, Mark B. Dekutoski, Joel Finkelstein, Charles Fisher, John France, Ziya L. Gokaslan, Laurence D. Rhines, Peter Rose, James M. Schuster

Abstracts and Oral Presentations

7:54–8:03 am

170 Operative Management of Adult Spinal Deformity Results in Significant Increases in QALYs Gained Compared to Nonoperative Management: Analysis of 479 Patients with Minimum 2-year Follow-up

Justin K. Scheer, Richard A. Hostin Jr., Frank Schwab, Chessie Robinson, Virginie Lafage, Douglas C. Burton, Robert Hart, Michael P. Kelly, Malla Keefe, David W. Polly Jr., Shay Bess, Christopher I. Shaffrey, Justin S. Smith, Christopher P. Ames, Internattional Spine Study Group

8:03–8:12 am

171 Depression Is Associated with Reduced Functional Outcome Following Brachial Plexus Reconstruction

Thomas J. Wilson, Kate Chang, Lynda Jun-San Yang

8:12–8:21 am

172 A Critical Analysis of Sagittal Plane Deformity Correction with Minimally Invasive Surgery: A 2 Year-Follow Up Study of Deformity Patients Categorized by the SRS-Schwab Classification

Gregory Mundis, Juan S. Uribe, Praveen V. Mummaneni, Neel Anand, Paul Park, David O. Okonkwo, Adam S. Kanter, Richard G. Fessler, Stacie Nguyen, Behrooz A. Akbarnia, Shay Bess, Michael Y. Wang, Frank La Marca, Khoi Duc Than, Vedat Deviren, Dean Chou, Virginie Lafage, Frank Schwab, Christopher I. Shaffrey

8:21–8:30 am

173 Randomized Trial of Sacroiliac Joint Fusion Using Triangular Titanium Implants vs. Non-Surgical Management

Charles Frederick Harvey, Daniel Cher

SECTION ON NEUROTRAUMA AND CRITICAL CARE ORAL PRESENTATIONS

TUE 29

7:00–7:09 am

DEPUY SYNTHES AWARD FOR RESIDENT RESEARCH ON BRAIN AND CRANIOFACIAL INJURY

174 Descriptive Epidemiology, Mechanisms, and Symptom Resolution of Concussion Sustained by National Collegiate Athletic Association Student-Athletes, 2009/10–2013/14 Academic Years

Scott L. Zuckerman, Erin Wasserman, Aaron M. Yengo-Kahn, Gary Solomon, Zack Kerr

7:09–7:18 am

DEPUY SYNTHES AWARD FOR RESIDENT RESEARCH ON SPINAL CORD AND SPINAL CORD INJURY

175 Surgical Versus Non-operative Management of Type II Odontoid Process Fractures in Octogenarians

Christopher Salvatore Graffeo, Avital Perry, Ross Puffer, Lucas Carlstrom, Grant William Mallory, Michelle J. Clarke

7:18–7:27 am

176 The Levels of GFAP and UCH-L1 During the First Week After a Traumatic Brain Injury—Correlations with Clinical and Imaging Findings and Outcome

Jussi Posti, Riikka Takala, Hilikka Runtti, Virginia Newcombe, Joanne Outtrim, Ari Katila, Janek Frantzen, Henna Ala-Seppälä, Jonathan Coles, Iftakher Hossain, Anna Kyllönen, Henna-Riikka Maanpää, Jussi Tallus, Peter J. Hutchinson, David K. Menon, Mark van Gils, Olli Tenovuo

7:27–7:36 am

177 Monitoring Intraspinal and Spinal Cord Perfusion Pressure in Acute Spinal Cord Injury

Marios Papadopoulos

7:36–7:45 am

178 COMT Val158Met Is Associated with Domain-specific Cognitive Impairment Following Mild Traumatic Brain Injury

John K. Yue, Ethan A. Winkler, Thomas W. McAllister, Nancy Temkin, Adam Ferguson, Hester F. Lingsma, Esther Yuh, Phiroz E. Tarapore, Sourabh Sharma, Ava Puccio, Kevin Wang, Pratik Mukherjee, Alex B. Valadka, David O. Okonkwo, Ramon Diaz-Arrastia, Geoffrey T. Manley

7:45–7:54 am

179 Brain Tissue Oxygen Tension and Its Response to Physiological Manipulations Is Dependent on Distance from Injury Site in a Swine Model of Traumatic Brain Injury

Gregory W.J. Hawryluk, Nicolas Phan, Adam Ferguson, Diane Morabito, Nikita Derugin, Campbell Stewart, Margaret Knudson, Geoffrey T. Manley, Guy Rosenthal

7:54–8:03 am

180 Comprehensive Study of Post-Traumatic Cerebral Energy Metabolism: Alterations in Oxygen, Glucose & Lactate Metabolism and Their Time Course In 74 Patients Compared to Normal Controls

Joshua Robert Dusick, Thomas C. Glenn, Paul M. Vespa, Neil A. Martin

8:03–8:12 am

181 Computed Tomography Parameters for Atlanto-occipital Dislocation in Adult Patients: The Occipital Condyle-C1 Interval

Eduardo Martinez del Campo, Samuel Kalb, Hector Soriano Baron, Jay D. Turner, Matthew Neal, Timothy David Uschold, Nicholas Theodore

8:12–8:21 am

182 Acute Putrescine Supplementation with Schwann Cell Transplantation Improves Sensory and Serotonergic Axon Growth and Functional Recovery in Spinal Cord Injury

Bryan Iorgulescu, Samik Patel, Jack Louro, Christian Andrade, Andre Sanchez, Damien Pearse

8:21–8:30 am

183 MEG Identification of Reduced Functional Connectivity Following Concussion

Ahmad Alhourani, Sudhir K. Pathak, Michael J. Randazzo, Tom Wozny, Efstathios Kondylis, Shawn Walls, Michael Ward, Stephen Foldes, Donald Krieger, David O. Okonkwo, R. Mark Richardson, Ajay Niranjana

SECTION ON PAIN ORAL PRESENTATIONS II

TUE 29

7:45–7:54 am

184 Use of Neuropathic Pain Questionnaires in Predicting the Development of Failed Back Surgery Syndrome Following Lumbar Discectomy for Radiculopathy

Mohammed F. Shamji, Alina Shcharinsky

7:54–8:03 am

185 Long Term Follow-up in Functional Outcomes of Combined Supraorbital Nerve Stimulation and Occipital Nerve Stimulation for Chronic Headache Patients

Shannon Wang Clark, Chengyuan Wu, David Boorman, Nohra Chalouhi, Mario Zanaty, Ashwini D. Sharan

8:03–8:12 am

186 Pain Free Outcomes After Surgical Intervention for Trigeminal Neuralgia: A Comparison of Gamma Knife and Microvascular Decompression

Jayant Velagala, Zachary Scott Mendelson, James K. Liu

8:12–8:21 am

187 Comparison of Neural Activation in Chronic Migraine Patients During Optimal and Suboptimal Occipital Nerve Stimulation: A PET Imaging Study

Shannon Wang Clark, Gaele E. Doucet, Lalit Venkatesan, Chengyuan Wu, Meela Mehdi, Charles Intenzo, Stephen Silberstein, Ashwini D. Sharan

8:21–8:30 am

188 Randomized Controlled Clinical Trial Evaluating the Safety and Effectiveness of 10 kHz High Frequency and Traditional Low Frequency Stimulation for the Treatment of Chronic Back and Leg Pain: 18-month Results

Leonardo Kapural, Cong Yu, Matthew W. Doust, Bradford E. Gliner, Ricardo Vallejo, B. Todd Sitzman, Kasra Amirdelfan, Donna M. Morgan, Lora L. Brown, Thomas L. Yearwood, Richard Bundschu, Allen Burton, Thomas Yang, Ramsin Benyamin, Abram H. Burgher

SECTION ON PEDIATRIC NEUROLOGICAL SURGERY ORAL PRESENTATIONS

TUE 29 7:00–7:09 am

189 Infection Rates Following Prolonged Time to Open Neural Tube Repair: A National Study

Frank Attenello, Alexander Tuchman, Timothy Wen, Swathi Nallapa, Eisha Christian, Steven Y. Cen, J. Gordon McComb, Mark D. Krieger, William J. Mack

7:09–7:18 am

190 Complement Membrane Attack Complex (MAC) Level in CSF Provides Rapid Identification of Shunt Infection and Failure

James M. Johnston Jr., Theresa N. Ramos, Anastasia A. Arynchyna, Tessa E. Blackburn, John Amburgy, Brandon George Rocque, Jeffrey P. Blount, Curtis J. Rozzelle, Jerry Oakes, Scott R. Barnum

7:18–7:27 am

191 What Is the Risk of a Shunt Malfunction After Elective Intradural Surgery?

Paul Klimo Jr., Garrett T. Venable, Nicholas Rossi

7:27–7:36 am

192 Etiologies of Early Ventricular Shunt Malfunctions and Proposal of a New Quality Metric

Paul Klimo Jr., Garrett T. Venable, Nicholas Rossi

7:36–7:45 am

193 Delayed Resolution of Syrinx After Posterior Fossa Decompression Without Dural Opening in Children with Chiari I Malformation

Benjamin C. Kennedy, Taylor B. Nelp, Kathleen M. Kelly, Michelle Q. Phan, Samuel S. Bruce, Michael Maurice McDowell, Neil Feldstein, Richard C. E. Anderson

7:45–7:54 am

194 Volumetric Analysis of Cerebral Peduncles and Cerebellar Hemispheres for Predicting Hemiparesis Following Hemispherectomy

Jeffrey Paul Mullin, Sungho Lee, William E. Bingaman, Jorge Gonzalez

7:54–8:03 am

195 The Effect of Weekend and After-Hours Surgery on Morbidity and Mortality Rates in Pediatric Neurosurgery

Virendra Rajendrakumar Desai, Andrew Jea, David D. Gonda, Sandi Lam, Thomas G. Luerssen

8:03–8:12 am

196 Longterm Outcome After Stereotactic Cysto-ventricular Shunt and Radiotherapy in Craniopharyngiomas: The Neuromythology of Aseptic Meningitis/Ventriculitis

Peter C. Warnke, Christoph B. Ostertag, Jonathan Hobbs

8:12–8:21 am

197 The Effect of Psychotropic Medications and Psychiatric Illness on the Baseline Neurocognitive Assessment of Young Athletes Using the IMPACT Test Battery: A Pilot Study

Aaron M. Yengo-Kahn, Scott L. Zuckerman, Gary Solomon

8:21–8:30 am

198 The Association Between Chiari Malformation Type -1 and Tethered Spinal Cord in Children

Brandon Smith, Jennifer Strahle, Hugh Garton, Karin M. Muraszko, Cormac O. Maher

SECTION ON STEREOTACTIC AND FUNCTIONAL NEUROSURGERY ORAL PRESENTATIONS II

TUE 29 7:45–7:54 am

199 Temporally Coordinated Deep Brain Stimulation in the Dorsal and Ventral Striatum Synergistically Enhances Associative Learning

Churl-Su Kwon, Husam Katnani, Shaun Patel, Samer Abdel-Aziz, John Gale, Emad N. Eskandar

7:54–8:03 am

STEREOTACTIC AND FUNCTIONAL NEUROSURGERY RESIDENT AWARD

200 Comparison of GPI Local Field Potential Characteristics in Patients with Parkinson's Disease, Craniocervical Dystonia, and Generalized Dystonia

Doris D. Wang, Coralie de Hemptinne, Salman Qasim, Svjetlana Miocinovic, Jill L. Ostrem, Philip A. Starr

8:03–8:12 am

201 Brain-machine Interface Control of a Robotic Arm for Object Grasping Is Improved with Computer-vision Based Shared Control

Elizabeth C. Tyler-Kabara, John Downey, Jeffrey Weiss, Katharina Muelling, Arun Venkataraman, Jean-Sebastien Valois, Shervin Javdani, Martial Herbert, J. Andrew Bagnell, Andrew Schwartz, Jennifer Collinger

8:12–8:21 am

202 Role of Repeat Ablation to Treat Seizure Recurrence Following Stereotactic Laser Amygdalohippocampotomy

Jon Timothy Willie, Robert E. Gross

8:21–8:30 am

203 Understanding Cell Migration After Direct Transplantation into the Spinal Cord—A Tool to Determine the Optimal Transplantation Volume

Juanmarco Gutierrez, Cheryl L. Moreton, Jason J. Lamanna, Rebecca Schapiro, Natalia Grin, Carl V. Hurtig, Joseph H. Miller, Jonathan Riley, Lindsey Urquia, Thais Federici, Nicholas Boulis

Continuing Medical Education

Congress of Neurological Surgeons 2015 Annual Meeting objectives

The Congress of Neurological Surgeons exists to enhance health and improve lives worldwide through the advancement of education and scientific exchange in the field of neurosurgery. The CNS Continuing Medical Education (CME) program provides participants with various learning formats to keep current in the field and to improve skills and enhance professional performance to provide the best possible care for their patients.

The CNS CME program is designed, planned, and implemented to evaluate a comprehensive collection of activities within the subspecialty of neurosurgery. The CNS plans to yield results that not only contribute to lifelong learning, but also demonstrate change and improvement in competence.

At the conclusion of the 2015 CNS Annual Meeting participants will be able to:

1. Alter their current practice patterns in accordance with the latest data.
2. Compare techniques based on findings discussed during case presentations.
3. Apply and/or perform new techniques based on best practices and current procedures.
4. Practice evidence-based, informed neurosurgical medicine.
5. Interpret newly found outcomes as a result of the scientific abstract presentations.
6. Demonstrate change in competence.

Educational Format Descriptions

The CNS offers sessions in a variety of formats to enhance your educational experience. Each session is open to all who have paid the general medical registration fee with the exception of optional Practical Courses, Luncheon Seminars, and Dinner Seminars, which are available for an additional fee.

Practical Courses

Didactic and hands-on courses with expert neurosurgical educators demonstrate clinical techniques and applications via technology, models, and simulation. Hands-on Practical Courses provide participants with the opportunity to improve surgical skills by applying and demonstrating learned techniques. Practical Courses also provide the opportunity to review case-based complex issues and discuss potential solutions.

- ▷ Practical Courses are offered Saturday, September 26, and Sunday, September 27.

General Scientific Sessions, Section Sessions, Hot Topics, Controversy Sessions, 3-D Sessions, Luncheon Seminars, and Dinner Seminars

Expert lecturers present research, best scientific evidence, and associated outcomes demonstrating clinical techniques and applications. The basics of translational development, clinical trials, guideline review, and updated changes and evaluation of clinical experience followed by examples of successful application are presented in various sessions. These Sessions and Seminars present basic skills and information you can apply in your daily practice and professional life.

- ▷ General Scientific Sessions are offered Sunday, September 27, through Wednesday, September 30.
- ▷ Section Sessions are offered Monday, September 28, and Tuesday, September 29.
- ▷ Luncheon Seminars, Hot Topics, and Controversy Sessions are offered Monday, September 28, through Wednesday, September 30.
- ▷ Dinner Seminars are offered on Saturday, September 26, Monday, September 28, and Tuesday, September 29.

Interactive discussion with audience response polling during the CNS Consensus Sessions

Consensus Sessions provide an opportunity for expert presentations, discussion, and peer debate on various topics, treatments, guidelines, and solutions. A review of the best evidence-based literature is conducted, and an opportunity is provided to share your perspective on the optimal management of these disorders. Finally, consensus is reached for the best application of surgical strategies in a variety of clinical scenarios.

- ▷ Consensus Sessions are offered on Monday, September 28, and Tuesday, September 29.

Case-based education

Challenging neurosurgical cases will be reviewed and discussed in a variety of innovative formats including 3-D Video Sessions, Live Surgery via Telemedicine, and panel discussions.

- ▷ 3-D Video Sessions will take place Monday, September 28, and Tuesday, September 29.
- ▷ Live Surgery via Telemedicine in the Exhibit Hall will take place Monday, September 28, through Wednesday, September 30. CME is not offered for these sessions.

Original Science Program

Scientific abstract presentations in the CNS Original Science Program offer original science, ground-breaking research, and the best clinical and basic neurosurgical science. Presentations allow for audience questions and moderated discussions.

- ▷ Choice abstract session is offered Sunday, September 27.
- ▷ Oral Presentations by subspecialty and CNS Neurosurgical Forums will take place on Monday, September 28, and Tuesday, September 29.
- ▷ Late-breaking abstracts will be presented on Wednesday, September 30.

Accreditation

The Congress of Neurological Surgeons is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.



CME Credit

The CNS designates this live activity for a maximum of 47.25 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

*A maximum of 22.75 *AMA PRA Category 1 Credits*[™] may be earned for general sessions only.

Advanced practice provider: For credit that may be acceptable to state medical associations, specialty societies, or state boards for medical licensure, please contact those organizations directly.

Additional CME credits can be earned by attending the following:

Practical Courses

Attendees will receive a maximum of three-and-a-quarter (3.25) *AMA PRA Category 1 Credits*[™] for each Saturday half-day Practical Course, a maximum of seven (7) *AMA PRA Category 1 Credits*[™] for each eligible Saturday full-day Practical Course, a maximum of three-and-a-quarter (3.25) *AMA PRA Category 1 Credits*[™] for each eligible Sunday half-day Practical Course, and a maximum of seven (7) *AMA PRA Category 1 Credits*[™] for each eligible Sunday full-day Practical Course. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Luncheon Seminars

Attendees will receive a maximum of one-and-a-half (1.5) *AMA PRA Category 1 Credits*[™] for all eligible Luncheon Seminars. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Dinner Seminars

Attendees will receive a maximum of two (2) *AMA PRA Category 1 Credits*[™] for all eligible Dinner Seminars. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Posters

Physicians may claim a maximum of five (5) *AMA PRA Category 1 Credits*[™] directly from the AMA for preparing a poster presentation, which is also included in the published abstracts. Physicians may claim credit on their AMA PRA certificate application or apply directly to the AMA for an *AMA PRA Category 1 Credits*[™] certificate.

Physicians may claim *AMA PRA Category 2 Credits*[™] for viewing scientific posters. Physicians should self-claim credit on their AMA PRA certificate application form. Please visit the AMA web site for details at www.ama-assn.org.

Claiming CME Credit

CME credits can be claimed through the online CME system at cns.org/2015. The CME tracking system allows you to create and print a CME certificate immediately following the CNS Annual Meeting while you are still in New Orleans, or from the convenience of your home or office. Upon completion of this process, your CME certificate will be sent to you via email at the email address you provided at registration.

Disclosures

The Accreditation Council for Continuing Medical Education Standards for Commercial Support requires that anyone in a position to control the content of the educational activity has disclosed all financial relationships with any commercial interest. Failure or refusal to disclose or the inability to satisfactorily resolve the identified conflict may result in the withdrawal of the invitation to participate in any of the CNS educational activities. The ACCME defines a "commercial interest" as

any entity producing, marketing, re-selling, or distributing healthcare goods or services consumed by, or used on, patients. It is also each speaker's responsibility to include the FDA clearance status of any device or drug requiring FDA approval discussed or described in their presentation or to describe the lack of FDA clearance for any "off label" uses discussed. Speakers from the audience are also required, therefore, to indicate any relevant personal/professional relationships as they discuss a given topic.

Disclosures will be published in the Scientific Program Book that is distributed at the Annual Meeting. Handout materials are prepared and submitted for distribution by the presenters who are solely responsible for their content.

FDA Statement

Some drugs or medical devices demonstrated at the Annual Meeting have not been cleared by the FDA or have been cleared by the FDA for specific purposes only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device(s) he or she wishes to use in clinical practice. The CNS policy provides that "off label" uses of a drug or medical device may be described at the Annual Meeting so long as the "off label" use of the drug or medical device is also specifically disclosed. Any drug or medical device is "off label" if the described use is not set forth on the products approval label. It is also each speaker's responsibility to include the FDA clearance status of any device or drug requiring FDA approval discussed or described in their presentation or to describe the lack of FDA clearance for any "off label" uses discussed. Speakers from the audience are also required, therefore, to indicate any relevant personal/professional relationships as they discuss a given topic.

General Information

Airports

The CNS Annual Meeting hotels and Ernest N. Morial Convention Center are located approximately 15 miles from Louis Armstrong New Orleans International Airport (MSY).

Taxis are readily available on the lower level, outside the baggage claim area.

Americans with Disabilities Act

Wheelchairs, scooters, information booths, designated parking, TDD telephones, and other services are available for visitors with disabilities. For electric scooter rental, please contact The UPS Store™ at 504-670-8887, or by visiting their website at www.theupsstorelocal.com/6216. The UPS Store strongly suggests that you reserve your scooter at least 72 hours in advance.

Please let us know if, under the ADA, you require special accommodations or services in order to attend the 2015 CNS Annual Meeting. We want to ensure that no individual with a disability is excluded because of the absence of auxiliary aids and services. Your requirements should be sent directly to the CNS Annual Meeting Registration and Housing Center at: cns@wynhdamjade.com or by calling 1-800-931-9543. Please provide any requests at least 30 days prior to the Annual Meeting to allow adequate time to accommodate your request.

Attire

Professional attire is appropriate at the Annual Meeting and in the Exhibit Hall. Some New Orleans restaurants require coats and ties for gentlemen. Please check each restaurant's policy when making reservations.

Spouse Hospitality Suite & Auxiliary Luncheon

All registered CNS Annual Meeting spouses and guests are invited to visit the CNS Spouse Hospitality Suite at the Hilton New Orleans Riverside, Monday through Wednesday, for daily continental breakfast from 8:00 to 10:30 am. Please note that admittance to the Spouse Hospitality Suite is by Spouse/Guest badge only.

Children

Children over the age of 12 should register at the (non-medical) guest registration fee. (Please note that children under the age of 18 are not allowed in the Exhibit Hall.)

Should you require babysitting services, please contact the concierge desk at your hotel. The CNS has no control over and assumes no responsibility for the care that is provided through hotels or these services. This information is provided solely to assist participants in identifying possible sources for childcare.

Climate

September temperatures in New Orleans range from a high of 88°F to a low of 70°F.

Course Agendas and Faculty

Agendas are occasionally subject to change. As we continue to strive to improve the quality of your educational experience, the CNS may substitute faculty with comparable expertise when necessary.

Digital Posters

Digital Posters are displayed electronically, Monday through Wednesday, in the Exhibit Hall, and can be searched by author, topic, or keyword.

Disclaimer

The material presented at the 2015 CNS Annual Meeting has been made available by the Congress of Neurological Surgeons for educational purposes only. The material is not intended to represent the only, nor necessarily the best, method or procedure appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement, or opinion of the faculty which may be helpful to others who face similar situations.

Neither the content (whether written or oral) of any course, seminar, or other presentation in the program, nor the use of a specific product in conjunction therewith, nor the exhibition of any materials by any parties coincident with the program, should be construed as indicating endorsement or approval of the views presented, the products used, or the materials exhibited by the CNS or by its Committees or Affiliates.

The CNS disclaims any and all liability for injury or other damages resulting to any individual attending the CNS Annual Meeting, and for all claims which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by physicians or any other person.

No reproductions of any kind, including audiotapes and videotape, may be made of the presentations at the CNS Annual Meeting. The CNS reserves all of its rights to such material, and commercial reproduction is specifically prohibited.

Exhibit Hall

Monday, September 28	11:00 am–4:45 pm
Tuesday, September 29	11:00 am–4:45 pm
Wednesday, September 30	10:00 am–1:00 pm

Admittance to the Exhibit Hall is by CNS name badge only. Children under the age of 18 are not allowed in the Exhibit Hall.

Future Meetings

2016: San Diego, California, September 24–28

2017: Boston, Massachusetts, October 7–11

2018: Chicago, Illinois, September 22–26

Housing Information

See pages 57–59.

Registration Information

Items included in registration fee:

- ▷ One ticket to the Opening Reception on Sunday, September 27
- ▷ Admission to General Scientific Sessions, Sunday–Wednesday
- ▷ Original Science Program to include Oral Presentations, Choice Abstracts, Neurosurgical and International Neurosurgical Forums, Digital Posters, and Late Breaking Abstracts
- ▷ Live Surgeries in the Exhibit Hall
- ▷ Consensus, Hot Topic, and Controversy Sessions
- ▷ Section Sessions
- ▷ Exhibit Hall access, Monday–Wednesday

Member Services Booth

The CNS Member Services Booth is located in the Exhibit Hall. Staff members will be available to assist you and answer any questions you may have about the CNS or your membership.

Press Room

Press activities will take place at the Ernest N. Morial Convention Center. Please write to info@cns.org with your credentials to request a press badge before the meeting.

Wi-Fi Service

For your convenience, complimentary Wi-Fi service will be provided throughout the Ernest N. Morial Convention Center where CNS events are being held.

Registration Information and Hours:

Saturday, September 26	7:00 am–5:30 pm
Sunday, September 27	7:00 am–7:00 pm
Monday, September 28	6:30 am–5:15 pm
Tuesday, September 29	6:30 am–5:15 pm
Wednesday, September 30	6:30 am–2:00 pm

Shuttle Services

Shuttle service to the Ernest N. Morial Convention Center will be available from some of the official CNS hotels as indicated in the Housing Information which can be found on pages 55–57. A shuttle schedule will be posted at the hotels and convention center.

Smoking

Ernest N. Morial Convention Center and official CNS hotels are non-smoking facilities.

Speaker Ready Room

All speakers and abstract presenters should visit the Speaker Ready Room at the Ernest N. Morial Convention Center prior to their presentations.

Saturday, September 26	7:00 am–5:30 pm
Sunday, September 27	7:00 am–6:00 pm
Monday, September 28	6:30 am–3:00 pm
Tuesday, September 29	6:30 am–3:00 pm
Wednesday, September 30	6:30 am–1:30 pm

Visa Information

The State Department of the United States encourages international participants to apply for their visas as early as possible—at least three months before the meeting. Some consulates may have backlogs in scheduling visa interviews so applicants should first contact the consulate to find out how long the wait is for an interview.

Visa wait times are available at:

http://travel.his.com/visa/temp/wait/wait_4638.html.

For information on the visa process, visit www.nationalacademies.org/visas.

The US State Department's visa site contains the official information on the visa application process: <http://travel.state.gov/content/visas/english.html>.

Registration Information

Registration Methods

For your convenience, you can register and reserve your hotel room via these four methods:

ONLINE:

cns.org/2015

PHONE*

800-931-9543 US and Canada
972-349-5539 International
8:00 am–6:30 pm CT

FAX*

972-349-7715

MAIL*

CNS Annual Meeting
CNS Registration and Housing Center
6100 West Plano Parkway, Suite 3500
Plano, TX 75093

*Allow five business days for registration and housing confirmation. The CNS Registration and Housing Center is not responsible for faxes not received due to mechanical failure or circumstances beyond our control.

Credit Card Payments

- ▷ US dollars and drawn on a US bank
- ▷ Visa
- ▷ MasterCard
- ▷ American Express

Check Payments

- ▷ US dollars and drawn on a US bank
- ▷ Full payment must accompany your registration form
- ▷ Any checks received from an overseas bank will be returned
- ▷ Any checks returned for insufficient funds are subject to additional charges

Materials Pick-Up

All materials should be picked up on-site at the Ernest N. Morial Convention Center.

REGISTRATION RATES	ADVANCE REGISTRATION	AFTER AUGUST 27, 2015
Member Registrant		
Active (Domestic & International)	\$ 685	\$ 785
International Vista	\$ 685	\$ 785
Associate***	\$ 685	\$ 785
Active Duty Military	\$ 0	\$ 0
Armed Forces (Guard/Reserve/Retiree)	\$ 475	\$ 575
Transitional	\$ 685	\$ 785
Resident (Domestic & International)	\$ 150	\$ 250
Fellow (Domestic & International)	\$ 200	\$ 300
Senior	\$ 370	\$ 470
Medical Student	\$ 0	\$ 0
Affiliate†	\$ 300	\$ 400
Non-Member Registrant		
Neurosurgeon	\$ 950	\$1050
Physician (MD, DO, etc.)	\$ 950	\$1050
Non-physician (Clinical Researcher/Scientist) ††	\$ 950	\$1050
Neurosurgeon (Faculty)	\$ 785	\$ 885
Resident*	\$ 285	\$ 385
Fellow**	\$ 300	\$ 400
Medical Student	\$ 250	\$ 350
PA/Physician Extender/Nurse/Nurse Practitioner	\$ 500	\$ 600
Corporate Representative†††	\$ 1250	\$ 1350
<p>Non-member registration categories are open to domestic and international registrants. * All non-member residents must have their Program Director sign the registration form. If registering online, a letter from your Program Director certifying that you are a resident in a neurosurgical training program must be faxed to 972-349-7715 or e-mailed to cns@wyndhamjade.com within one week of completing registration. ** All non-member fellows must attach a letter from their Chief of Service verifying fellow status within one week of completing registration. *** Associate category includes physicians and/or scientists who are not neurological surgeons but have shown distinction in a neurosurgically related discipline. † Affiliate category includes allied health professionals involved in neurosurgically related patient care, teaching, or research, such as physician assistant, physician extender, nurse, nurse practitioner and non-nurse. †† Non-member/Non-physician category is limited to scientists, engineers, etc. involved in neurosurgical research and/or product development not affiliated with an exhibiting company. †††Corporate representatives attend for education only. They must not conduct sales activities in the meeting space, nor influence content in any way. Solicitation of medical attendees is strictly prohibited.</p>		

IMPORTANT DATES TO REMEMBER

August 27	Advance registration discount and housing deadline
September 3	Last day to cancel registration in order to receive a full refund, less a \$100 processing fee
September 16	Last day to make any hotel changes or cancellations through the CNS Housing provider: Email: cns@wyndhamjade.com Phone: 800-931-9543 International: 972-349-5539
September 18	Any hotel changes or cancellations must be made directly with the hotel after September 18. Individual hotel cancellation policies can be found on your original housing confirmation.

Registration Change/Cancellation Information

Full registration refunds, less a \$100 processing fee, will be granted if written requests for cancellation are received by 5:00 pm CST on September 3, 2015. Course, seminar, and event tickets will be refunded in full until September 3, 2015. No refunds of any kind will be given after this date, regardless of cause. Refunds will not be given for no-shows.

Cancellation requests accepted via:

E-mail: cns@wyndhamjade.com
Fax: 972.349.7715
Mail: CNS Annual Meeting
 CNS Registration and Housing Center
 6100 West Plano Parkway, Suite 3500
 Plano, TX 75093

Hotel Information

Contact the official CNS Annual Meeting Registration and Housing Center to reserve your guest rooms.

Hotels will not accept reservations from CNS meeting attendees directly. Reservations can be made online or via fax, phone, or mail. Visit cns.org/2015 to make your reservation today!

Be sure to complete the entire housing section of the registration form, which can be found online at cns.org/2015.

Hotel Reservation Information and Deadlines

Hotel reservations are only available to registered CNS attendees. See pages 58-59 for hotel information. Rooms are subject to availability. Reserve your room by August 27, 2015.

Deposit

A deposit of one night's room and tax is due at the time your hotel reservation is made. This payment must be submitted with your registration fee and will be charged to the credit card provided. Please make checks payable to CNS Registration and Housing Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093. All rooms are subject to applicable state and local taxes and appropriate occupancy fee. A small portion of your room rate will be used to help defray the cost of registration and housing services. Hotel reservations requested without deposit will not be processed.

Hotel Change/Cancellation Policy

The deadline for new reservations is September 16, 2015. The hotel requires a deposit of one night's room and tax to reserve your room. Please make any reservations, changes, or cancellations through the CNS housing bureau, Wyndham Jade, through September 16. Starting on September 18 and up to 72 hours prior to your arrival, changes and cancellations must be made directly with your reserved hotel.

Beginning September 18, 2015

- ▷ All changes, cancellations or questions regarding your reservation must be made directly with the hotel.
- ▷ If the cancellation notice is not received according to the hotel policy, the deposit will be forfeited. Your individual hotel's cancellation policy can be found in your emailed confirmation.

Complimentary Housing for CNS Resident Member Attendees

Complimentary housing at the CNS Annual Meeting is available to a limited number of CNS Resident members on a first-come, first-served basis.

To be considered for this program, CNS Resident members must:

- ▷ Complete and submit the Resident Member Housing Application by July 1, 2015. Completed applications may be submitted by Email: meetings@cns.org, Fax: 847-240-0804, or Mail: Congress of Neurological Surgeons, 10 North Martingale Rd., Suite 190, Schaumburg, IL 60173.
- ▷ Register for the CNS 2015 Annual Meeting by July 1, 2015.
- ▷ All residents enrolled in ACGME approved programs have been automatically given complimentary CNS Resident membership.
- ▷ If you are not a CNS Resident member, complete your membership application by May 31, 2015.

Residents who choose to reserve a room through the CNS Annual Meeting Registration and Housing Center and are later accepted into the CNS resident housing program are responsible for cancelling their original reservation.

For complete Resident Housing Application guidelines, please visit <https://www.cns.org/annual-meeting-2015/sessions-schedule/residents>.

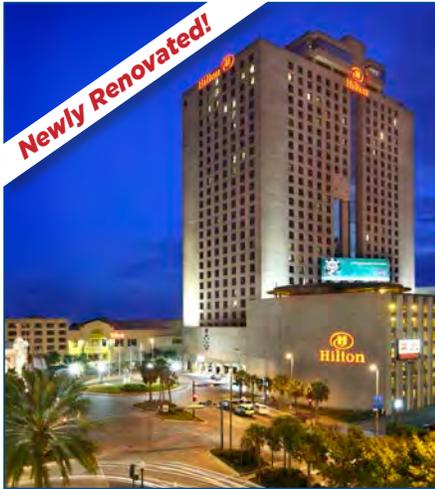
Thank You for Your Continued Support of the CNS!

The CNS thanks you for your support in reserving your guest room through the official CNS Housing and Registration Center. The CNS, in negotiating contracts with convention centers and hotels, must commit to a minimum number of guest rooms. This commitment helps guarantee the availability of meeting space and helps control the cost of the meeting. A history of high utilization of our room block enables the CNS to negotiate better room rates for future meetings.

HOTEL ROOM RATES (Rate includes tax)	SINGLE	DOUBLE	TRIPLE	QUAD
Hilton New Orleans Riverside—Headquarter Hotel	\$320.86	\$320.86	\$343.81	\$366.76
Courtyard New Orleans Downtown/Iberville	\$237.39	\$237.39	\$260.34	\$283.29
DoubleTree by Hilton Hotel New Orleans	\$253.30	\$253.30	\$264.78	\$276.25
Embassy Suites New Orleans Convention Center (1 King Standard Suite)	\$241.83	\$241.83	\$241.83	\$241.83
Embassy Suites New Orleans Convention Center (Lofts Club 1 King)	\$276.25	\$276.25	\$276.25	\$276.25
JW Marriott New Orleans	\$264.78	\$264.78	\$287.73	\$310.68
Loews New Orleans Hotel	\$332.63	\$332.63	\$367.05	\$401.48
New Orleans Marriott	\$256.60	\$256.60	\$279.55	\$302.50
Renaissance New Orleans Pere Marquette Hotel	\$243.12	\$243.12	\$266.07	\$289.02
The Ritz-Carlton, New Orleans	\$356.58	\$356.58	N/A	N/A

*All hotel rates include state and local taxes (14.75%), appropriate Occupancy Fee (ranges from \$1-\$3 per room, per night), and a Housing Bureau fee.

Hotel Information



1 Hilton New Orleans Riverside-Headquarter Hotel

2 Poydras Street
New Orleans, LA 70130

.4 miles from Ernest N. Morial Convention Center
(No shuttle service provided)

Amenities Include:

- ▷ More than \$5.6 million in renovations, including updated guestrooms
- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Beauty salon
- ▷ Full-service business center
- ▷ On-site restaurants and upscale outlet mall
- ▷ Room service



2 Courtyard New Orleans Downtown/Iberville

910 Iberville Street
New Orleans, LA 70112

1.4 miles to Ernest N. Morial Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Full service spa



3 DoubleTree by Hilton Hotel New Orleans

300 Canal Street
New Orleans, LA 70130

.6 miles to Ernest N. Morial Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Business center
- ▷ Room service



4 Embassy Suites New Orleans Convention Center

315 Julia Street
New Orleans, LA 70130

.2 miles to Ernest N. Morial Convention Center
(No shuttle service provided)

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Business center
- ▷ All suite property
- ▷ Complimentary breakfast in the lobby from 6:30–9:30 am on weekdays and from 7:00–10:30 am on weekends
- ▷ Complimentary manager's reception in lobby 5:30–7:30 pm, Monday–Thursday
- ▷ 24-hour Pavilion Pantry Market
- ▷ Room service



5 JW Marriott New Orleans

614 Canal Street
New Orleans, LA 70130

1.2 miles to Ernest N. Morial Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Barber/beauty shop
- ▷ Complimentary coffee/tea in all guestrooms
- ▷ Room service



6 Loews New Orleans Hotel

300 Poydras Street
New Orleans, LA 70130

.5 miles to Ernest N. Morial Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Full service Balance Spa featuring an indoor saltwater lap pool, co-ed whirlpool and dry sauna
- ▷ 24-hour full-service business center
- ▷ Same-day dry cleaning service

Hotel Information



7 New Orleans Marriott

555 Canal Street
New Orleans, LA 70130

.8 miles to Ernest N. Morial
Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Complimentary coffee/tea available in all guestrooms
- ▷ Full service business center
- ▷ Room service



8 Renaissance New Orleans Pere Marquette Hotel

817 Common Street
New Orleans, LA 70112

1.5 miles to Ernest N. Morial
Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Complimentary coffee/tea available in all guestrooms
- ▷ Full-service business center
- ▷ Room service



9 The Ritz-Carlton, New Orleans

921 Canal Street
New Orleans, LA 70112

1.2 miles to Ernest N. Morial
Convention Center

Amenities Include:

- ▷ High-speed Internet (complimentary to CNS guests)
- ▷ Fitness center (complimentary to CNS guests)
- ▷ Destination Spa, the largest in the city, offering more than 100 specialty treatments
- ▷ Same-day dry cleaning service
- ▷ 24-hour room service

Hotel Legend

- 1 Hilton New Orleans Riverside-Headquarter Hotel
- 2 Courtyard New Orleans Downtown/Iberville
- 3 DoubleTree by Hilton Hotel New Orleans
- 4 Embassy Suites New Orleans Convention Center
- 5 JW Marriott New Orleans
- 6 Loews New Orleans Hotel
- 7 New Orleans Marriott
- 8 Renaissance New Orleans Pere Marquette Hotel
- 9 The Ritz-Carlton, New Orleans



Complimentary shuttle service will be provided from all CNS hotels with the exception of the Hilton New Orleans Riverside (Headquarter Hotel) and the Embassy Suites New Orleans Convention Center Hotel.



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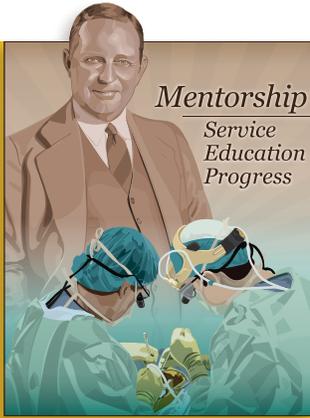


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Monday September 28, 2015 2:30-4:00 pm

-  **HOT TOPIC:** Optimal Management for a Single Intracranial Metastasis: Radiation or Surgery?
-  **HOT TOPIC:** Cervical and Lumbar Adjacent Level Breakdown: Fusion or Not?
-  **CONTROVERSY SESSION:** ICH Management — the Role for Hemispherectomy Minimally Invasive to Decompression Craniectomy Surgical Intervention

Tuesday September 29, 2015 2:30-4:00 pm

-  **HOT TOPIC:** “Liquid Biopsy:” Advancements in Next-Generation Personalized Care for Brain Cancer
-  **HOT TOPIC:** The Role of Laser-Induced Thermal Therapy (LITT) in Epilepsy
-  **CONTROVERSY SESSION:** Persistent Pain after Lumbar Laminectomy-SCS vs. Spine Controversies: What to Do?

Wednesday September 30, 2015 1:00-2:15 pm

-  **HOT TOPIC:** Treatment for Facial Pain (Trigeminal Neuralgia)
-  **HOT TOPIC:** How to Stay Relevant Between Cost Pressure, Budgets, and ACOs - A Stepwise Approach
-  **CONTROVERSY SESSION:** Anticoagulation and Neurosurgery

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Advance Registration Deadline August 27, 2015

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