

CONGRESS OF NEUROLOGICAL SURGEONS
2011 ANNUAL MEETING
WASHINGTON, DC
OCTOBER 1-6, 2011

Scientific Program

Meeting Purpose

The purpose of the 2011 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 allied health professionals including nurses, physician assistants and clinical specialists.

What's New

- ★ **The Art of Managing Complex Cranial Cases: A 3-D Video Presentation**
- ★ **Live Surgical Presentation – Unyielding Progress: Carotid Stenting (Findings and Practice)**
- ★ **Operative *NEUROSURGERY*[®]**
- ★ **Multidisciplinary Oral Presentations**
- ★ **Case Controversies with the Masters**
 - ✦ Malignant Glioma: Extent of Resection
 - ✦ Cervical Spine Arthroplasty: Fact or Fiction
- ★ **And More New Courses and Sessions, including:**
 - ✦ New Dinner Seminars on Tuesday and Wednesday Evening at top-rated restaurants in DC!
 - ✦ PC11 Simulation Based Neurosurgical Training Course!
 - ✦ Dinner Seminar SANS – Earn up to 2 hours additional CME!



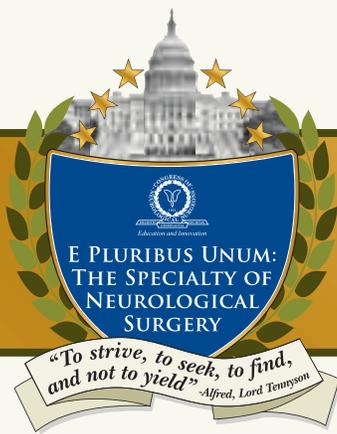
The Congress of Neurological Surgeons exists to enhance health and improve lives worldwide through the advancement of education and scientific exchange.

Education and Innovation

Annual Meeting At-a-Glance	2
President's Message	5
Schedule of Events	6
Honored Guest	12
Featured Speakers	13
2011 CNS Annual Meeting Committee	18
2011 CNS Officers and Executive Committee	19
CNS Fellowship Awards	24
Continuing Medical Education	28
Disclosure Information	30
Scientific Program	
Saturday	42
Sunday	44
Monday	52
Tuesday	78
Wednesday	86
Thursday	93
General Information	94
Floor Plans	97
Exhibitors	102
Speaker Index	128

SATURDAY, OCTOBER 1	
7:30 AM – 5:00 PM	Full Day Practical Course (PC01)
1:00 – 5:00 PM	Afternoon Practical Courses (PC02 – PC07)
SUNDAY, OCTOBER 2	
8:00 AM – 4:00 PM	Full Day Practical Courses (PC08 – PC11)
8:00 – 11:30 AM	Morning Practical Courses (PC12 – PC18)
12:30 – 4:00 PM	Afternoon Practical Courses (PC19 – PC29)
1:00 – 4:00 PM	CNS Resident SANS Challenge Preliminary Rounds
4:30 – 6:00 PM	Opening Session
4:35 – 4:53 PM	<i>Albert L. Rhoton, Jr.</i> Striving to Optimize Outcome: The Anatomic Foundation of Neurological Surgery
4:56 – 5:16 PM	<i>Gerald Imber</i> Special Lecture: Genius on the Edge: The Bizarre Double Life of Dr. William Stewart Halsted
5:18 – 5:35 PM	<i>Peter C. Burger</i> Seeking New Paradigms in Neuropathology – Anatomic, Genetic and Molecular
5:40 – 6:00 PM	<i>General (Ret.) Stanley McChrystal</i> John Thompson History of Medicine Lecture: Maintaining Expertise in a Complex and Changing Environment
6:00 – 8:00 PM	CNS Opening Reception Walter E. Washington Convention Center Ballroom A–C
MONDAY, OCTOBER 3	
7:00 – 11:30 AM	General Scientific Session I
8:15 – 8:35 AM	<i>Story C. Landis, PhD</i> Special Lecture: Translational Neuroscience
8:40 – 9:00 AM	<i>H. Hunt Batjer</i> Honored Guest Lecture: Red Cerebral Veins – The Science, The Art, and The Craft
9:00 AM – 3:00 PM	Exhibit Hall Open
9:00 – 10:00 AM	Beverage Break with Exhibitors
10:05 – 10:25 AM	<i>Christopher C. Getch</i> Presidential Address
10:30 – 10:50 AM	<i>Roger Goodell</i> Concussion in the NFL
10:55 – 11:30 AM	<i>Jon Meacham</i> Twelfth Annual Walter E. Dandy Orator: Leadership in a Time of Crisis
11:30 AM – 12:00 PM	Break with Exhibitors
12:00 – 1:30 PM	Luncheon Seminars
1:30 – 2:00 PM	Beverage Break with Exhibitors
2:00 – 3:30 PM	<ul style="list-style-type: none"> ★ CNS Original Science Program I – Oral Presentations ★ Special Course I: Concussion: A Perfect Storm and the Role of the National Football League ★ Consensus Session I: Treatment of Metastatic Brain Tumors: What is Standard of Care?
3:30 – 5:00 PM	<ul style="list-style-type: none"> ★ CNS Original Science Program I – Neurosurgical Forum ★ NEW! The Art of Managing Complex Cranial Cases: A 3-D Video Presentation
TUESDAY, OCTOBER 4	
7:00 – 11:30 AM	General Scientific Session II
7:39 – 7:59 AM	<i>H. Hunt Batjer</i> Honored Guest Lecture: Overcoming a Bad Outcome: Thoughts from a Colleague
8:35 – 8:50 AM	<i>Miguel Manrique</i> Spanish Neurosurgical Society Presidential Lecture: Epilepsy Surgery: Resection or Modulation
9:00 AM – 5:00 PM	Exhibit Hall Open
9:00 – 10:00 AM	Beverage Break with Exhibitors

TUESDAY, OCTOBER 4 (continued)	
10:00 – 10:30 AM	<i>L. Nelson Hopkins, III, Elad I. Levy</i> Live Surgical Presentation – Unyielding Progress: Carotid Stenting (Findings and Practice)
10:30 – 11:30 AM	<i>Jeffrey Kahane, Charles J. Limb, Margaret Batjer</i> Special Symposium: Music and the Mind
11:30 AM – 12:00 PM	Break with Exhibitors
12:00 – 1:30 PM	Luncheon Seminars
1:30 – 2:00 PM	Beverage Break with Exhibitors
2:00 – 3:30 PM	<ul style="list-style-type: none"> ★ NEW! Operative NEUROSURGERY® ★ Section Sessions ★ Special Course II: Guidelines and Clinical Evidence Update
3:30 – 4:30 PM	CNS Annual Business Meeting
3:30 – 5:00 PM	Wine and Cheese Reception with the CNS Exhibitors
5:00 – 6:00 PM	CNS Resident SANS Challenge Championship Round
6:00 – 7:00 PM	CNS Resident Recruitment Social
6:30 – 8:30 PM	<ul style="list-style-type: none"> ★ Dinner Seminar I: Low Grade Glioma ★ Dinner Seminar II: Controversies in the Treatment of Cervical Spondylotic Myelopathy
WEDNESDAY, OCTOBER 5	
7:00 – 11:30 AM	General Scientific Session III
7:41 – 7:58 AM	<i>Leigh R. Hochberg</i> Special Lecture: Seeking to Restore Function: Human-Robotic Interface
9:00 AM – 2:00 PM	Exhibit Hall Open
9:00 – 10:00 AM	Beverage Break with Exhibitors
10:18 – 10:38 AM	<i>Colonel Geoffrey S.F. Ling</i> Special Lecture: Neuro Casualties of Modern War
10:38 – 10:58 AM	<i>H. Hunt Batjer</i> Honored Guest Lecture: Honoring Our Public Responsibility: Creating Milestone and Matrix Based Training in an Era of Duty Hour Restrictions
11:03 – 11:30 AM	<i>Frank Deford</i> Julian T. Hoff Lecture: SPORTS: The Hype and the Hypocrisy
11:30 AM – 12:00 PM	Break with Exhibitors
12:00 – 1:30 PM	Luncheon Seminars
1:30 – 2:00 PM	Beverage Break with Exhibitors
2:00 – 3:30 PM	<ul style="list-style-type: none"> ★ Section Sessions ★ CNS Original Science Program II – Multidisciplinary Oral Presentations ★ Consensus Session II: Management of Low Back Pain: What is Standard of Care?
6:30 – 8:30 PM	<ul style="list-style-type: none"> ★ Dinner Seminar III: Current Management Strategies for Metastatic Spine Tumors ★ Dinner Seminar IV: Cervical and Lumbar Arthroplasty
7:00 PM	CNS International Reception Smithsonian American Art Museum and National Portrait Gallery
THURSDAY, OCTOBER 6	
8:00 – 11:30 AM	General Scientific Session IV
8:03 – 9:40 AM	Case Controversies with the Masters (Malignant Glioma: Extent of Resection)
9:40 – 10:00 AM	Beverage Break
10:00 – 11:25 AM	Case Controversies with the Masters (Cervical Spine Arthroplasty: Fact or Fiction?)
11:30 AM	Adjourn



Stay Connected to the 2011 CNS Annual Meeting

CNS Mobile Meeting Guide

Everything
you need
right at your
fingertips...

- ★ Locate your meetings and courses.
- ★ Search for a particular lecturer.
- ★ See what's happening right now!
- ★ Find a specific product category or company in the Exhibit Hall.
- ★ Find out who is registered.
- ★ Browse abstracts and digital posters.
- ★ Add sessions and events to your calendar.
- ★ Send messages to other attendees.
- ★ And more!



Download at the Apple® App StoreSM
or m.cns.org Today!

Welcome

Dear Colleague:

On behalf of the Congress of Neurological Surgeons Executive Committee, the Scientific Program Committee, and the 2011 CNS Honored Guest, Dr. H. Hunt Batjer, I welcome you to Washington, DC for the 2011 CNS Annual Meeting, *E Pluribus Unum: The Specialty of Neurological Surgery*.

This year, we are pleased to once again partner with an international society, the Spanish Society of Neurosurgery, who has been instrumental in planning our 61st Annual Meeting along with our Scientific Program Committee. Our dynamic scientific program offers the expert lectures, case-based courses and sessions, and hands-on training opportunities you need to advance your practice in the constantly changing field of neurosurgery.

Centered on our sub-theme, *To strive, to seek, to find and not to yield*, our Sunday evening Opening Session and daily General Scientific Sessions address the challenges we as neurosurgeons face in our daily practice and the quest we embark on to ensure our specialty's future. Our invited speakers—including US Army General (Ret.) Stanley McChrystal and Pulitzer Prize Winning Author, Jon Meacham—will amplify our theme through their lessons on leadership in challenging environments.

This CNS Original Science Program highlights the most important clinical developments and basic science research. On Monday afternoon, the Original Science Program features the top Oral Presentations in each subspecialty, followed by the interactive Neurosurgical Forum, while Wednesday afternoon offers a NEW Multidisciplinary Oral Presentations featuring top research that crosses subspecialties.

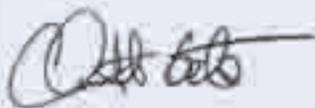
The education opportunities will continue throughout the day and into the evening, with Consensus Sessions, Section Sessions, Special Courses and the return of the popular Dinner Seminars, where expert faculty cover important clinical issues at four of DC's top-rated restaurants. Rounding out this vibrant program are two new afternoon sessions—**The Art of Managing Complex Cranial Cases: A 3-D Video Presentation** on Monday afternoon featuring 3-D video presentations of surgical approaches by leaders in each subspecialty and Tuesday afternoon's **Operative NEUROSURGERY®** session highlights important developments published in this *NEUROSURGERY®* supplement over the past year.

I encourage you to make time during your stay and enjoy the truly magnificent capital of the United States, as well as our abundant auxiliary program and numerous social events including the Opening Reception and the Wine and Cheese Reception with the CNS Exhibitors.

I am excited you are here as we work together to strive, to seek, to find and not to yield new techniques to continually improve our esteemed field.



Sincerely,



Christopher C. Getch
CNS President

Welcome colleagues from
the Spanish Society of
Neurosurgery!



Schedule of Events

Saturday, October 1

Start	End	Event	Room
7:00 AM	9:00 AM	CSNS NE Quadrant	Meeting Rooms 8 & 9 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	9:00 AM	CSNS NW Quadrant	Meeting Room 5 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	9:00 AM	CSNS SE Quadrant	Meeting Room 2 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	9:00 AM	CSNS SW Quadrant	Meeting Room 3 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	9:00 AM	CSNS/AANS Caucus	Meeting Rooms 10 & 11 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	9:00 AM	CSNS/CNS Caucus	Meeting Rooms 12 & 13 (Renaissance Washington, DC Downtown Hotel)
7:00 AM	5:00 PM	Sergeant-At-Arms	209A
7:00 AM	5:30 PM	Speaker Ready Room	203B
7:00 AM	5:30 PM	Registration	West Registration
7:00 AM	5:30 PM	Association of Neurosurgical Physician Assistants 5th Annual CME Event (Speaker Ready Room)	Bulfinch (Grand Hyatt Washington)
7:00 AM	6:00 PM	Association of Neurosurgical Physician Assistants 5th Annual CME Event	Constitution Ballroom B (Grand Hyatt Washington)
7:00 AM	6:00 PM	Association of Neurosurgical Physician Assistants 5th Annual CME Event (Exhibits)	Constitution Ballroom A (Grand Hyatt Washington)
7:30 AM	5:00 PM	PC01: NINDS/CNS Workshop on Grant Writing and Career Development	140AB
8:00 AM	4:00 PM	ThinkFirst Chapter Training	Burnham (Grand Hyatt Washington)
8:00 AM	4:00 PM	ThinkFirst Committee Meetings	Potomac (Grand Hyatt Washington)
9:00 AM	12:00 PM	CSNS Plenary Session	Renaissance Ballrooms East & West (Renaissance Washington, DC Downtown Hotel)
12:00 PM	1:00 PM	CSNS Lunch	Congressional Hall A & B (Renaissance Washington, DC Downtown Hotel)
1:00 PM	2:30 PM	CSNS Executive Committee	Meeting Rooms 12 & 13 (Renaissance Washington, DC Downtown Hotel)
1:00 PM	5:00 PM	PC02: 3-D Anatomy (Supratentorial)	145A
1:00 PM	5:00 PM	PC03: Surgical Management of Tumors in Eloquent Regions	202B
1:00 PM	5:00 PM	PC04: The Essentials of Neurosurgical ICU Management	146C
1:00 PM	5:00 PM	PC05: CPT Coding Review and What to Expect in 2012	144A
1:00 PM	5:00 PM	PC06: Cervical Spondylotic Myelopathy and Radiculopathy: Treatment Approaches and Options	206
1:00 PM	5:00 PM	PC07: Spine Biomechanics: A Focus on Junctional Pathology	143B
3:00 PM	6:00 PM	AANS/CNS Joint Guidelines Committee	Meeting Room 5 (Renaissance Washington, DC Downtown Hotel)
4:00 PM	4:30 PM	<i>Congress Quarterly</i> Editorial Board	102A
4:30 PM	5:30 PM	Neurosurgery PAC Board of Directors Meeting	Meeting Room 14 (Renaissance Washington, DC Downtown Hotel)
4:00 PM	6:00 PM	AANS/CNS Cerebrovascular Executive Committee Meeting	Grand Ballroom South (Renaissance Washington, DC Downtown Hotel)
4:30 PM	5:30 PM	CNS Publications Committee	101
5:00 PM	7:00 PM	PC01: Reception	149AB
6:00 PM	8:00 PM	Association of Neurosurgical Physician Assistants 5th Annual CME Event (Reception)	Constitution Ballrooms C-E (Grand Hyatt Washington)

Sunday, October 2

Start	End	Event	Room
7:00 AM	5:30 PM	Sergeant-At-Arms	209A
7:00 AM	6:00 PM	Speaker Ready Room	203B

Schedule of Events

7:00 AM	7:00 PM	Registration	West Registration
8:00 AM	4:00 PM	PC08: Inpatient and Outpatient Management Dilemmas for Allied Health Care Professionals	143A
8:00 AM	4:00 PM	PC09: Minimally Invasive Spinal Surgery	151AB
8:00 AM	4:00 PM	PC10: Brain Tumor Update	146C
8:00 AM	4:00 PM	PC11: Simulation Based Neurosurgical Training	154A
8:00 AM	11:30 AM	PC12: Trauma Update Part I: Traumatic Brain Injury	146A
8:00 AM	11:30 PM	PC13: Cranial Radiosurgery Update	146B
8:00 AM	11:30 AM	PC14: Contemporary Principles of Spinal Deformity Surgery	147B
8:00 AM	11:30 AM	PC15: Using Evidence-Based Medicine to Manage Spinal Disorders	144B
8:00 AM	11:30 AM	PC16: Masters of Cranial Neuroendoscopy	147A
8:00 AM	11:30 AM	PC17: Open Aneurysm Surgery: A 3-D Practical Course	145B
8:00 AM	11:30 AM	PC18: Deep Brain Stimulation: Indications and Emerging Applications	207A
8:00 AM	4:00 PM	ThinkFirst Committee Meetings	Cabin John (Grand Hyatt Washington)
8:00 AM	5:00 PM	Sergeant-At-Arms	209A
9:00 AM	9:30 AM	Welcome to DC	Penn Quarter (Renaissance Washington, DC Downtown Hotel)
9:00 AM	11:00 AM	AANS/CNS Pain Executive Council Meeting	Meeting Room 18 (Renaissance Washington, DC Downtown Hotel)
10:00 AM	1:00 PM	Society of Neurological Surgeons: Neurosurgery Summit Meeting	Meeting Room 3 (Renaissance Washington, DC Downtown Hotel)
10:00 AM	12:00 PM	ASSFN Executive Council Meeting	Meeting Room 19 (Renaissance Washington, DC Downtown Hotel)
10:00 AM	11:30 AM	Association of Neurosurgical Physician Assistants – Board Meeting	Wilson (Grand Hyatt Washington)
10:30 AM	12:00 PM	CNS Fellowship Committee	102A
11:00 AM	12:00 PM	CNS Information and Technology and CNS Web Editorial Board Committee Meeting	140A
11:30 AM	1:30 PM	CNS Research Committee	142
12:00 PM	1:00 PM	CSNS State Society Forum	Renaissance Ballroom East (Renaissance Washington, DC Downtown Hotel)
12:00 PM	2:00 PM	AANS/CNS Quality Improvement Workgroup	Meeting Room 16 (Renaissance Washington, DC Downtown Hotel)
12:00 PM	2:00 PM	CNS Education Committee Meeting	102B
12:00 PM	2:00 PM	CNS International Division	101
12:30 PM	4:00 PM	PC19: Cranial Neurosurgery: Complication Avoidance and Management	140B
12:30 PM	4:00 PM	PC20: Trauma Update Part II: Spinal Cord and Spinal Column Injury	146A
12:30 PM	4:00 PM	PC21: Implementing and Utilizing the Metastatic Brain Tumor Clinical Practice Guideines in Everyday Practice	147A
12:30 PM	4:00 PM	PC22: Spinal Metastatic Tumors: Contemporary Multidisciplinary Treatment	146B
12:30 PM	4:00 PM	PC23: 3-D Anatomy (Infratentorial)	145A
12:30 PM	4:00 PM	PC24: Principles and Practice of Peripheral Nerve Surgery	150A
12:30 PM	4:00 PM	PC25: My Worst Spinal Complication: What I Learned	206
12:30 PM	4:00 PM	PC26: Neurocritical Care and Neurosurgical Emergencies Update	207B
12:30 PM	4:00 PM	PC27: Operative Indications, Options and Techniques for Epilepsy	144A
12:30 PM	4:00 PM	PC28: Expanding Your Neurosurgical Pain Practice	143B
12:30 PM	4:00 PM	PC29: Ethics in Neurosurgical Practice: Designing a High Quality, Meaningful, and Personally Satisfying Clinical Practice	143C
1:00 PM	4:00 PM	CNS SANS Lifelong Learning Committee Meeting	102A
1:00 PM	4:00 PM	CNS SANS Resident Challenge – Preliminary Rounds	202A
1:00 PM	4:00 PM	CNS SANS Resident Challenge Green Room	203A
2:00 PM	3:00 PM	AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Rapid Response Committee Meeting	Meeting Room 5 (Renaissance Washington, DC Downtown Hotel)

Schedule of Events

2:00 PM	4:30 PM	AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Scientific Program Committee Meeting	Meeting Room 3 (Renaissance Washington, DC Downtown Hotel)
3:00 PM	4:00 PM	Society of Neurological Surgeons Bootcamp Subcommittee Meeting	Meeting Room 19 (Renaissance Washington, DC Downtown Hotel)
4:00 PM	6:00 PM	AANS/CNS Cerebrovascular Executive Committee Meeting	Grand Ballroom South (Renaissance Washington, DC Downtown Hotel)
4:30 PM	6:00 PM	Opening Session	Hall E
6:00 PM	8:00 PM	CNS Opening Reception	Ballroom A-C

Monday, October 3

Start	End	Event	Room
6:00 AM	7:00 AM	AANS/CNS Section on Tumors Executive Committee Meeting	Renaissance Ballroom West A (Renaissance Washington, DC Downtown Hotel)
6:00 AM	7:00 AM	ThinkFirst Board of Directors Meeting	Wilson (Grand Hyatt Washington)
6:30 AM	3:00 PM	Speaker Ready Room	203B
6:30 AM	4:30 PM	Registration	West Registration
7:00 AM	11:30 AM	General Scientific Session I	Hall E
8:00 AM	10:30 AM	Spouse Hospitality Suite	Meeting Room 14 (Renaissance Washington, DC Downtown Hotel)
8:00 AM	3:00 PM	Sergeant-At-Arms	209A
9:00 AM	10:00 PM	Beverage Break with Exhibitors	Hall D
9:00 AM	3:00 PM	Exhibit Hall	Hall D
9:00 AM	3:00 PM	Digital Poster Center	Hall D
9:35 AM	10:00 AM	Product & Technology Showcase – Presented by Lanx, Inc.: Clinical Applications of the Aspen™ Device	Hall D – Demo Theater
11:30 AM	2:00 PM	AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Executive Committee Meeting	Meeting Room 2 (Renaissance Washington, DC Downtown Hotel)
11:30 AM	12:00 PM	Break with Exhibitors	Hall D
11:30 AM	1:30 PM	Research & Development Expert Exchange	Hall D
12:00 PM	1:30 PM	M01: Resident/Honored Guest Luncheon: Your Career in Neurosurgery: Pathways to Success and Failure	145A
12:00 PM	1:30 PM	M02: Current Management Strategies for Craniosynostosis	140A
12:00 PM	1:30 PM	M03: Disc Replacement in the Cervical and Lumbar Spine	146A
12:00 PM	1:30 PM	M04: Nuances of Minimally Invasive Spine Surgery	146B
12:00 PM	1:30 PM	M05: Pseudoarthrosis of the Cervical and Lumbar Spine	146C
12:00 PM	1:30 PM	M06: Multidisciplinary Management of Subarachnoid Hemorrhage and Vasospasm	147A
12:00 PM	1:30 PM	M07: Hematology and Coagulation for Neurosurgeons: Dangers and Solutions	147B
12:00 PM	1:30 PM	M08: Incorporating Psychosurgery into Your Neurosurgical Practice	140B
12:00 PM	1:30 PM	M09: Hemorrhagic and Ischemic Stroke Update for Allied Health Professionals	143A
12:00 PM	1:30 PM	M10: Tumor Resection in High-Risk Locations: Techniques to Minimize Collateral Damage	145B
12:00 PM	1:30 PM	M11: Staying Current in Vestibular Schwannoma Management	143B
12:00 PM	1:30 PM	M12: Augmenting Skull Base Approaches with Endoscopy	143C
12:00 PM	1:30 PM	M13: Innovations in the Management of Pediatric Neurotrauma	144A
12:00 PM	1:30 PM	M14: Peripheral Nerve Board Review	144B
12:00 PM	1:30 PM	M15: Surgical, Interventional and Radiosurgical Approaches to Intracranial Arteriovenous Malformations	144C
12:00 PM	1:30 PM	M16: Should You Become Employed by a Hospital? There Are Alternatives. How To Negotiate Your Future	149AB
12:00 PM	1:30 PM	AANS/CNS Neurotrauma and Critical Care Committee Meeting	Meeting Room 3 (Renaissance Washington, DC Downtown Hotel)

1:30 PM	2:00 PM	Beverage Break with Exhibitors	Hall D
2:00 PM	3:30 PM	Oral Presentations – Council of State Neurosurgical Societies	204A
2:00 PM	3:30 PM	Oral Presentations – Section on Cerebrovascular Surgery	202A
2:00 PM	3:30 PM	Oral Presentations – Section on Disorders of the Spine and Peripheral Nerves	202B
2:00 PM	3:30 PM	Oral Presentations – Section on Neurotrauma and Critical Care	206
2:00 PM	3:30 PM	Oral Presentations – Section on Pain	203A
2:00 PM	3:30 PM	Oral Presentations – Section on Pediatric Neurological Surgery	207B
2:00 PM	3:30 PM	Oral Presentations – Section on Stereotactic and Functional Neurosurgery	207A
2:00 PM	3:30 PM	Oral Presentations – Section on Tumors	201
2:00 PM	3:30 PM	Consensus Session I: Treatment of Metastatic Brain Tumors: What Is Standard of Care?	154AB
2:00 PM	3:30 PM	Special Course I: Consensus: A Perfect Storm and the Role of the National Football League	152B
3:30 PM	5:00 PM	The Art of Managing Complex Cranial Cases: A 3-D Video Presentation	Hall E
3:30 PM	5:00 PM	Neurosurgical Forum	East Registration
5:00 PM	5:30 PM	Neuropoint-SD Investigator Meeting	Meeting Room 17 (Renaissance Washington, DC Downtown Hotel)
5:00 PM	6:30 PM	“Princeton in Neurosurgery” Reception	Penn Quarter (Renaissance Washington, DC Downtown Hotel)
5:00 PM	7:00 PM	American Association of South Asian Neurosurgeons Meeting	Meeting Rooms 12-13 (Renaissance Washington, DC Downtown Hotel)
5:00 PM	7:00 PM	Mayfield Society Reunion	Renaissance Ballroom East (Renaissance Washington, DC Downtown Hotel)
5:00 PM	7:00 PM	ThinkFirst 25 Year Review Reception	Farragut Square (Grand Hyatt Washington)
5:30 PM	6:30 PM	KU Neurosurgery Reception	Grand Ballroom North (Renaissance Washington, DC Downtown Hotel)
5:30 PM	7:00 PM	University of Utah Reception	Meeting Room 18 (Renaissance Washington, DC Downtown Hotel)
5:30 PM	7:30 PM	University of Illinois College of Medicine Alumni Reception	Grand Ballroom Central (Renaissance Washington, DC Downtown Hotel)
6:00 PM	8:00 PM	Jefferson Neurosurgery Reception	Meeting Room 16 (Renaissance Washington, DC Downtown Hotel)
6:00 PM	8:00 PM	Mayo Clinic Alumni Association Reception	Meeting Room 5 (Renaissance Washington, DC Downtown Hotel)
6:00 PM	9:30 PM	ev3 Satellite Symposium: Pipeline Embolization Device for the Treatment of Large and Giant Aneurysms	Constitution Ballroom C-E (Grand Hyatt)
6:30 PM	8:30 PM	USC Neurosurgery Alumni Reception	Renaissance Ballroom West B (Renaissance Washington, DC Downtown Hotel)

Tuesday, October 4

Start	End	Event	Room
6:00 AM	7:00 AM	AANS/CNS Drugs & Devices Committee Meeting	Meeting Room 17 (Renaissance Washington, DC Downtown Hotel)
6:30 AM	3:00 PM	Speaker Ready Room	203B
6:30 AM	4:30 PM	Registration	West Registration
7:00 AM	11:30 AM	General Scientific Session II	Hall E
8:00 AM	10:30 AM	Spouse Hospitality Suite	Meeting Room 14 (Renaissance Washington, DC Downtown Hotel)
8:00 AM	3:00 PM	Sergeant-At-Arms	209A
9:00 AM	10:00 AM	Beverage Break with Exhibitors	Hall D
9:00 AM	5:00 PM	Digital Poster Center	Hall D
9:00 AM	5:00 PM	Exhibit Hall	Hall D
9:05 AM	9:30 AM	Product & Technology Showcase – Presented by Nexstim: Navigated Brain Stimulation – Optimizing the Surgical Strategy	Hall D – Demo Theater

Schedule of Events

11:30 AM	12:00 PM	Break with Exhibitors	Hall D
11:30 AM	1:30 PM	Research & Development Expert Exchange	Hall D
12:00 PM	1:30 PM	T16: Initial and Long-term Management of Patients with Chiari Malformations and Syringomyelia	140A
12:00 PM	1:30 PM	T17: Guidelines for Surgical Management Lumbar Spine Surgery	145A
12:00 PM	1:30 PM	T18: Guidelines for Surgical Management of Cervical Spondylotic Myelopathy and OPLL	140B
12:00 PM	1:30 PM	T19: Managing Difficult Surgical Scenarios in Spinal Surgery	146A
12:00 PM	1:30 PM	T20: Multidisciplinary Management Strategies for Unruptured Aneurysms	143B
12:00 PM	1:30 PM	T21: Advances in the Management of Trigeminal Neuralgia and Facial Pain	143C
12:00 PM	1:30 PM	T22: Surgery and Radiosurgery for Epilepsy	144A
12:00 PM	1:30 PM	T23: Staying Current in the Management of the Neurotrauma Patient	144B
12:00 PM	1:30 PM	T24: Pushing the Limits of Skull Base Approaches	144C
12:00 PM	1:30 PM	T25: Evidence-Based Management of Brain Metastases	146B
12:00 PM	1:30 PM	T26: What's New in Pituitary Surgery	146C
12:00 PM	1:30 PM	T27: Surgical Resection of Low-Grade Gliomas: Current Strategies and Controversies	147A
12:00 PM	1:30 PM	T28: Treatment Dilemmas: Normal Pressure Hydrocephalus and Pseudotumor Cerebri	147B
12:00 PM	1:30 PM	T29: Spine Surgery in the Geriatric Population: Current Strategies and Controversies	149AB
12:00 PM	1:30 PM	T30: Spine and Peripheral Nerve Injuries in Sports	152A
12:00 PM	1:30 PM	T31: Incorporating Novel Technologies into Your Neurosurgical Practice	151B
12:00 PM	1:30 PM	T32: Finding the Right Job: Identifying the "Best Fit" Practice for Your Needs	143A
12:00 PM	1:30 PM	CSM Investigator's Meeting	Meeting Room 3 (Renaissance Washington, DC Downtown Hotel)
12:05 PM	1:00 PM	Product & Technology Showcase – Presented by <i>NEUROSURGERY</i> ®: How to get published in our world-class publication	Hall D – Demo Theater
12:30 PM	4:30 PM	2012 CNS Annual Meeting Scientific Program Committee	101
1:30 PM	2:00 PM	Beverage Break with Exhibitors	Hall D
2:00 PM	3:30 PM	Operative <i>NEUROSURGERY</i>®	Hall E
2:00 PM	3:30 PM	Section on Cerebrovascular Surgery – E. Pluribus Unum: Out of Many, One: Neurovascular Surgery	150A
2:00 PM	3:30 PM	Section on Disorders of the Spine and Peripheral Nerves – Complications in Spinal Surgery: Incidence, Avoidance and Treatment	151A
2:00 PM	3:30 PM	Section on Stereotactic and Functional Neurosurgery – Costs and Benefits of DBS Surgery	154AB
2:00 PM	3:30 PM	Section on Tumors – Genomic Alterations in Primary Brain Tumors	150B
2:00 PM	3:30 PM	Special Course II: Guidelines and Clinical Evidence Update	152B
3:30 PM	5:00 PM	Wine & Cheese Reception with the CNS Exhibitors	Hall D
3:30 PM	4:30 PM	CNS Annual Business Meeting	145B
5:00 PM	6:00 PM	CNS SANS Resident Challenge – Championship Round	202A
6:00 PM	7:00 PM	CNS Resident Recruitment Social	202B
6:00 PM	8:00 PM	WINS Reception	Renaissance Ballroom East (Renaissance Washington, DC Downtown Hotel)
6:30 PM	8:30 PM	DIN1: Low Grade Glioma	The Source
6:30 PM	8:30 PM	DIN2: Controversies in the Treatment of Cervical Spondylotic Myelopathy	Occidental Grill & Seafood

Wednesday, October 5

Start	End	Event	Room
6:30 AM	3:00 PM	Speaker Ready Room	203B
6:30 AM	3:00 PM	Registration	West Registration

7:00 AM	11:30 AM	General Scientific Session III	Hall E
8:00 AM	10:30 AM	Spouse Hospitality Suite	Meeting Room 14 (Renaissance Washington, DC Downtown Hotel)
8:00 AM	3:00 PM	Sergeant-At-Arms	209A
9:00 AM	10:00 AM	Beverage Break with Exhibitors	Hall D
9:00 AM	2:00 PM	Digital Poster Center	Hall D
9:00 AM	2:00 PM	Exhibit Hall	Hall D
11:30 AM	12:00 PM	Break with Exhibitors	Hall D
12:00 PM	1:30 PM	W32: Contemporary Management of Traumatic Spine and Spinal Cord Injury	140A
12:00 PM	1:30 PM	W33: Treatment of Cervical Radiculopathy: Anterior vs. Posterior Approaches	140B
12:00 PM	1:30 PM	W34: Open vs. Endovascular Management of Cerebral Aneurysms	143C
12:00 PM	1:30 PM	W35: Current Strategies for Management of Pediatric Brain Tumors	144A
12:00 PM	1:30 PM	W36: Pediatric Spine Management (Traumatic and Congenital)	144B
12:00 PM	1:30 PM	W37: Lessons Learned: Avoidance and Management of Complications of Aneurysm Surgery	144C
12:00 PM	1:30 PM	W38: Peripheral Nerve Entrapment Syndromes: Diagnosis and Management	145A
12:00 PM	1:30 PM	W39: Head Injury: Current Management Strategies	145B
12:00 PM	1:30 PM	W40: Complication Avoidance and Management in Skull Base Surgery	147A
12:00 PM	1:30 PM	W41: Advances in Malignant Glioma Treatment	147B
12:00 PM	1:30 PM	W42: Neuro-Oncology and Radiosurgery: Current Indications and Controversies	146C
12:00 PM	1:30 PM	W43: Practical Approaches for Maximizing Reimbursement	146B
12:00 PM	1:30 PM	W44: Innovations in the Management of Intracerebral Hemorrhage	146A
12:00 PM	1:30 PM	W45: Comprehensive Management Strategies for the Treatment of Movement Disorders	149AB
12:00 PM	1:30 PM	W46: Multidisciplinary Management of Spinal Metastases	152A
1:30 PM	2:00 PM	Beverage Break with Exhibitors	Hall D
2:00 PM	3:30 PM	Multidisciplinary Oral Presentations	151B
2:00 PM	3:30 PM	Consensus Session II: Management of Low Back Pain: What Is Standard of Care?	152B
2:00 PM	3:30 PM	Council of State Neurosurgical Societies – Impact of Conflict of Interest on Advancement of Neurosurgery	150A
2:00 PM	3:30 PM	Section on Neurotrauma and Critical Care – Injury Guidelines: Uniting Many Studies Into Practice	151A
2:00 PM	3:30 PM	Section on Pain – Complications of Pain Surgery	154AB
2:00 PM	3:30 PM	Section on Pediatric Neurological Surgery – State-of-the-Art Management of Pediatric Tumors: Achieving Goals, Managing Risks	150B
6:30 PM	8:30 PM	DIN3: Current Management Strategies for Metastatic Spine Tumors	1789 Restaurant
6:30 PM	8:30 PM	DIN4: Cervical and Lumbar Arthroplasty	Charlie Palmer Steak
7:00 PM	8:30 PM	CNS International Reception	Smithsonian American Art Museum and National Portrait Gallery

Thursday, October 6

Start	End	Event	Room
7:30 AM	11:00 AM	Speaker Ready Room	203B
7:30 AM	11:30 AM	Registration	West Registration
8:00 AM	11:30 AM	General Scientific Session IV	Hall E
9:40 AM	10:00 AM	Beverage Break	Hall E

Honored Guest **H. Hunt Batjer, MD**

Michael J. Marchese Professor and Chair of the Department of Neurological Surgery, Northwestern University Feinberg School of Medicine



H. Hunt Batjer, MD, is the Michael J. Marchese Professor and Chair of the Department of Neurological Surgery at Northwestern University Feinberg School of Medicine and Chair of the Department of Neurological Surgery at Northwestern Memorial Hospital in Chicago. Dr. Batjer is recognized internationally as a leading cerebrovascular surgeon, especially for complex aneurysms, vascular malformations, and brain ischemic states.

Dr. Batjer, who joined Northwestern in 1995, is a Past President of the Congress of Neurological Surgeons and the Society of University Neurosurgeons. He is past Chairman of the AANS/CNS Section on Cerebrovascular Disease. He is an elected member of the American Academy of Neurological Surgery, The Society of Neurological Surgery, and the American Surgical Association. He is past Chairman of the American Board of Neurological Surgery and Chairman of the Board of the Interurban Neurological Society. Last year he served as Vice President of the Neurosurgical Society of America and has been nominated as President-Elect. He has also been nominated for a position as Director-at-Large with the American Association of Neurological Surgeons, and has been elected Chair of the Neurosurgical Residency Review Committee of the ACGME, and Co-Chair of the NFL Committee on Head, Neck, Spine.

Dr. Batjer came to Northwestern from the University of Texas Southwestern Medical Center at Dallas where he was Professor of Neurological Surgery and was twice voted outstanding teacher.

His academic pursuits and research in ischemic and hemorrhagic stroke have resulted in over 300 publications as well as five books and two major texts titled *The Textbook of Neurological Surgery* and *Intracranial Vascular Malformations*. He also serves on multiple editorial boards and is principal reviewer for Cerebrovascular Disease for *NEUROSURGERY*®. Dr. Batjer has served as Visiting Professor at over 50 medical universities worldwide and given 20 Endowed Lectureships.

He and his wife Janet live in Wilmette, Illinois and have four daughters.

Honored Guest Presentations!

Monday, October 3

8:40 AM

Red Cerebral Veins – The Science, The Art, and The Craft



12:00 PM

M01 Resident/Honored Guest Luncheon: Your Career in Neurosurgery: Pathways to Success and Failure

2:00 PM

Special Course I: Concussion: A Perfect Storm and the Role of the National Football League

Tuesday, October 4

7:39 AM

Overcoming a Bad Outcome: Thoughts from a Colleague



Wednesday, October 5

10:38 AM

Honoring Our Public Responsibility: Creating Milestone and Matrix Based Training in an Era of Duty Hour Restrictions

Twelfth Annual Walter E. Dandy Oration

Jon Meacham

Executive Vice President and Executive Editor, Random House Publishing

Monday, October 3 10:55 – 11:30 AM

Leadership in a Time of Crisis

Jon Meacham is a Pulitzer Prize-winning biographer, Vice President and Executive Editor at Random House and the former editor of *Newsweek* and co-anchor of PBS' *Need to Know*.

Arriving at *Newsweek* as a writer in 1995, he became National Affairs Editor that year, was named Managing Editor in 1998 and served as Editor from 2006 until September 2010. In May 2010 Meacham began co-anchoring PBS's *Need To Know*, a weekly primetime news and public affairs series covering the economy, politics, the environment and energy, health, national security, and culture. As Executive Vice President and Executive Editor at the Random House Publishing Group, Meacham focuses on acquiring works of history, religion and biography and advising on a broad array of publishing opportunities, including digital initiatives.

His book *American Lion: Andrew Jackson in the White House* was published by Random House in November 2008. It debuted at #2 on *The New York Times* bestseller list and became a Times Notable Book. On April 20, 2009, *American Lion* was awarded the Pulitzer Prize for biography.

Meacham is also the author of two other New York Times bestsellers—*American Gospel: God, the Founding Fathers, and the Making of a Nation* (2006) and *Franklin and Winston: An Intimate Portrait of an Epic Friendship* (2003), about the wartime relationship between Roosevelt and Churchill. *Franklin and Winston* was named a *Los Angeles Times* book of the year and won The Churchill Centre's 2005 Emery Reves Award for the best book of the year on Winston Churchill.

He has written for *The New York Times Book Review*, *The Washington Post*, *Slate*, and *The Los Angeles Times Book Review*. In 2001, he edited *Voices in Our Blood: America's Best on the Civil Rights Movement* (Random House), a collection of distinguished nonfiction about the mid-century struggle against Jim Crow. In 2009, Meacham was elected to the Society of American Historians and serves on its executive board. He has served as a judge for the Robert F. Kennedy Book Award and was awarded the Hubert H. Humphrey First Amendment Freedoms Prize by the Anti-Defamation League.

Born in Chattanooga in 1969, Meacham holds a B.A. in English Literature from The University of the South in Sewanee, Tennessee. He now serves on the university's governing Board of Regents. He is a "Global Leader for Tomorrow" of the World Economic Forum in Davos, Switzerland and a member of the Council on Foreign Relations. He is a communicant of St. Thomas Episcopal Church Fifth Avenue, where he serves on the Vestry of the 180-year-old parish, and is a member of the Vestry of Trinity Church Wall Street. In 2005, he was awarded an honorary Doctor of Humane Letters degree from the Berkeley Divinity School at Yale University and holds three other honorary doctorates.

Meacham and his wife, Keith, the director of development at Harlem Day Charter School, live in New York City with their three children.



Join us for a Book Signing!
Monday, October 3 at 11:30 AM
Exhibit Hall – Member Services
Booth 1221

Featured Speakers

Past Walter E. Dandy Orators

Condoleezza Rice	2010	David McCullough	2006	Jane Goodall, PhD	2002
Walter Isaacson	2009	Professor Wole Soyinka	2005	Stephen E. Ambrose, PhD	2001
Maya Angelou, PhD	2008	President Mikhail Gorbachev	2004	Senator John Glenn	2000
Sir Salman Rushdie	2007	Roberta L. Bondar, MD, PhD	2003		

Special Lecture Gerald Imber, MD

Plastic Surgeon and Author

Sunday, October 2 4:56 – 5:16 PM

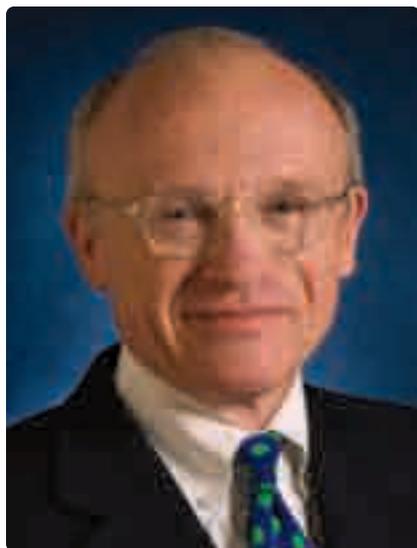
Genius on the Edge: The Bizarre Double Life of Dr. William Stewart Halsted

Gerald Imber, MD, is a well known plastic surgeon and authority on cosmetic surgery, and directs a private clinic in Manhattan. An early proponent of prevention and minimally invasive procedures, he has devised many popular anti-aging techniques, and is attending surgeon at New York Presbyterian Hospital and assistant clinical professor of surgery at Weill-Cornell School of Medicine.

Dr. Imber has published many scientific papers and is a regular lecturer at professional meetings. He is also the author of a number of “beauty books” and has written on many subjects for varied publications such as *Departures*, and *The Wall Street Journal*, and appears regularly on network television. His biography, *Genius on the Edge: The Bizarre Double Life of Dr. William Stewart Halsted*, is an illuminating biography of a complex and troubled man whose brilliance we continue to benefit from today.



Join us for a Book Signing!
Sunday, October 2 at 6:00 PM
Grand Ballroom Foyer, Level 3



Special Lecture Peter C. Burger, MD

*Professor of Pathology, Oncology, and Neurosurgery,
Johns Hopkins School of Medicine*

Sunday, October 2 5:18 – 5:35 PM

Seeking New Paradigms in Neuropathology – Anatomic, Genetic and Molecular

Peter C. Burger, MD, was born in New Jersey, grew up in Chicagoland and attended Oberlin College in Ohio, graduating in 1962. He graduated from Northwestern University Medical School in Chicago, in 1966 where he completed a memorable rotation on the Neurosurgery Service under Dr. Paul C. Bucy. After a rotating internship at Los Angeles County General Hospital/University of Southern California Medical Center and a two-year tour in the military, as a general medical officer at Sheppard Air Force Base in Wichita Falls, TX, he decided on pathology as a specialty and began a four year combined residency in anatomic pathology and fellowship in neuropathology at Duke University Medical Center. Completing in 1973, he then assumed a faculty position he held for twenty years. He and his wife Paula then accepted positions at Johns Hopkins University, Dr. Burger as Professor of Pathology, Oncology, and Neurosurgery.

Sixth Annual John Thompson History of Medicine Lecture

General (Ret.) Stanley McChrystal

Former Commander of US and International Forces in Afghanistan

Sunday, October 2 5:40 – 6:00 PM

Maintaining Expertise in a Complex and Changing Environment

A one-of-a-kind commander with a remarkable record of achievement, General Stanley McChrystal is widely praised for creating a revolution in warfare that fused intelligence and operations. A four-star general, he is the former commander of US and international forces in Afghanistan and the former leader of Joint Special Operations Command (JSOC), which oversees the military’s most sensitive forces. McChrystal’s leadership of JSOC is credited with the December 2003 capture of Saddam Hussein and the June 2006 location and killing of Abu Musab al-Zarqawi, the leader of al-Qaeda in Iraq.





Special Lecture
Story C. Landis, PhD

Director of the National Institute for Neurological Disorders and Stroke (NINDS)

Monday, October 3 8:15 – 8:35 AM
Translational Neuroscience

Story Landis, PhD, is Director of the National Institute for Neurological Disorders and Stroke (NINDS) which funds and conducts research aimed at reducing the burden of neurological disorders, and Chair of the NIH Stem Cell Task Force. She received her undergraduate degree from Wellesley College and her PhD from Harvard University. After faculty appointments at Harvard and Case Western Reserve University, she joined NINDS in 1995 as Scientific Director of the intramural program. She is an elected fellow of the Academy of Arts and Sciences, the American Association for the Advancement of Science, the Institute of Medicine, and the American Neurological Association and in 2002 was elected President of the Society for Neuroscience.



Special Lecture
Roger Goodell

Commissioner of the NFL

Monday, October 3 10:30 - 10:50 AM
Concussion in the NFL

Roger Goodell is the eighth chief executive in the NFL's 90-year history. As the NFL continues to grow in popularity, Commissioner Goodell has focused his priorities on strengthening the game and all 32 NFL franchises through innovation and communication while addressing a wide range of issues, including player health and safety, the medical needs of retired players, personal conduct, revenue sharing, stadium construction, media innovation, and international development.

During his 24-year career in the NFL, Goodell was instrumental in many league accomplishments including expansion, realignment, and stadium development. He directed the dramatic transformation and growth of the NFL's business units, played a lead role in the launch of the NFL Network, and was a key member of the negotiating team that produced the NFL's television agreements.

Goodell graduated magna cum laude from Washington & Jefferson College in Washington, Pennsylvania in 1981 with a degree in economics and received the school's Walter Hudson Baker Prize for excellence in economics.

Special Lecture
Charles J. Limb, MD

Associate Professor, Department of Otolaryngology-Head and Neck Surgery, Johns Hopkins School of Medicine

Tuesday, October 4 10:30 – 11:00 AM
Music and the Mind

Charles J. Limb, MD, is an Associate Professor at the Johns Hopkins School of Medicine in the Department of Otolaryngology-Head and Neck Surgery, where he specializes in neurotology and skull base surgery. He is also a Faculty Member at the Peabody Conservatory of Music. He completed his undergraduate degree at Harvard University and his medical degree at Yale University School of Medicine, followed by surgical training at Johns Hopkins Hospital. His current areas of research focus on the study of the neural basis of musical creativity. His work has been featured by CNN, National Public Radio, TED, New York Times, Library of Congress, Discovery Channel, American Museum of Natural History and the Baltimore Symphony Orchestra.



Special Lecture Jeffrey Kahane

Music Director of the Los Angeles Chamber Orchestra

Tuesday, October 4 10:30 – 11:30 AM
Music and the Mind

Jeffrey Kahane has established an international reputation as a truly versatile artist, recognized for his mastery of a diverse repertoire. Since making his Carnegie Hall debut in 1983, he has given recitals in many of the nation's major music centers and has appeared as a soloist with major orchestras around the world. Currently in his 14th season as Music Director of the Los Angeles Chamber Orchestra, he has received much recognition for his innovative programming and commitment to education and community involvement and in 2007 received ASCAP Awards for Adventurous Programming.

A graduate of the San Francisco Conservatory of Music, Mr. Kahane was the First Prize winner at the 1983 Rubinstein Competition, a finalist at the 1981 Van Cliburn Competition, recipient of a 1983 Avery Fisher Career Grant and the first Andrew Wolf Chamber Music Award in 1987.



Special Lecture Margaret Batjer

Concertmaster of the Los Angeles Chamber Orchestra

Tuesday, October 4 10:30 – 11:30 AM
Music and the Mind

Margaret Batjer made her first solo appearance at the age of 15 with the Chicago Symphony in Gian Carlo Menotti's Violin Concerto. Since then, she has been re-engaged by the Chicago Symphony, as well as the Philadelphia and New York string orchestras, the St. Louis, Seattle, San Jose and Dallas symphonies, the Chamber Orchestra of Europe, the Prague Chamber Orchestra, the Halle Symphony Orchestra and the Berlin Symphony Orchestra.

Since 1998, Batjer she has served as concertmaster of the Los Angeles Chamber Orchestra and in 2005 joined the faculty of the Thornton School of Music at the University of Southern California. In 2000, she and Jeffrey Kahane inaugurated LACO's Conversations series, performing the complete cycle of Beethoven's sonatas for violin and piano at LA's Zipper Concert Hall.

Special Lecture Leigh R. Hochberg, MD, PhD

Brain-Machine Interface Innovator

Wednesday, October 5 7:41 – 7:58 AM
Seeking to Restore Function: Human-Robotic Interface

Leigh R. Hochberg, MD, PhD, received his Bachelors in Science with Honors in Neural Science at Brown University. During his MD and PhD research at Emory University he studied motor cortical plasticity, and with Donald Humphrey was the first to use cortical recordings from chronically implanted electrodes in macaques to drive a robot wrist. After residency and chief residency in Neurology at Massachusetts General Hospital/Brigham and Women's Hospital/Harvard Medical School, Dr. Hochberg stayed on as a fellow in Stroke and Neurocritical Care.

Dr. Hochberg's research focuses on the development and testing of implanted neural interfaces to help people with paralysis and other neurologic disorders and is supported by numerous career development awards. He is the IDE Sponsor-Investigator and principal clinical investigator of the pilot clinical trials of the BrainGate2 Neural Interface System, maintains clinical duties on the Acute Stroke and Neurocritical Care Services at the MGH and Brigham and Women's Hospital; Associate Professor of Engineering, Brown University; Investigator, Center for Restorative and Regenerative Medicine, Department of Veterans Affairs, Providence VA Medical Center; and Visiting Associate Professor of Neurology at Harvard Medical School.



Special Lecture

Geoffrey S.F. Ling, MD, PhD, FAAN

Director of Neuro-critical Care, Walter Reed Army Medical Center (WRAMC)



Wednesday, October 5 10:18 – 10:38 AM
Neuro Casualties of Modern War

Geoffrey S.F. Ling, MD, PhD, FAAN, is Professor and Interim Chairman of Neurology at the Uniformed Services University of the Health Sciences (USUHS) in Bethesda, Maryland, Director of Neuro-Critical Care at Walter Reed Army Medical Center (WRAMC) in Washington, DC and attending neuro-critical care physician at Johns Hopkins Hospital in Baltimore, MD. He is an active duty Colonel in the US Army.

He is the senior neuro-critical care specialist in the Dept of Defense (DoD) and the first for the US Army. In this capacity, he has been deployed to both Afghanistan (2003) and Iraq (2005). As a member of the Joint Chiefs of Staff's Gray Team, he was sent on shorter missions to the war theater (2009, 2011) where he contributed to the development of the military's continuum of medical care for traumatic brain injury. This is the first system wide approach to clinically managing this disease. He is a member of the American Neurological Association, a fellow of the American Academy of Neurology, a member of the Order of Military Medical Merit and is "A" designated in his military medical specialty.

Dr. Ling has received numerous national awards and has published over 125 peer-reviewed journal articles, reviews and book chapters, including the traumatic brain injury chapter in Cecil's Textbook of Medicine, the VA-DoD Clinical Practice Guidelines for mild TBI/Concussion and Guidelines for the Field Management of Combat Related Head Trauma.

COL Ling is also a program manager with the Defense Advanced Research Projects Agency (DARPA) and was the agency's Program Manager of the Year (2009). His portfolio of research programs focuses on restoring injured warfighters. His most notable programs are PREventing Violent Explosive Neuro Trauma (PREVENT), Revolutionizing Prosthetics and Predicting Health and Disease (PHD). PREVENT is elucidating the underlying mechanisms by which explosive blast injures the brain.



Fifth Annual Julian T. Hoff Lecture

Frank Deford

Award-Winning Sports Writer, NPR Commentator, and Humanitarian

Wednesday, October 5 11:03 – 11:30 AM
SPORTS: The Hype and the Hypocrisy

Author and commentator, Frank Deford is among the most versatile of American writers. His work has appeared in virtually every medium. The author of sixteen books, his most recent, *Bliss, Remembered*, is a love story set at the 1936 Berlin Olympics and in World War II.

On radio, Deford may be heard as a commentator every Wednesday on Morning Edition on National Public Radio and, on television, he is a regular correspondent on the HBO show, *RealSports With Bryant Gumbel*. In magazines, he is Senior Contributing Writer at *Sports Illustrated*.

Moreover, two of Deford's books – the novel, *Everybody's All-American*, and *Alex: The Life Of A Child*, his memoir about his daughter who died of cystic fibrosis – have been made into movies. Another of his books, *Casey On The Loose*, is being turned into a Broadway musical.

As a journalist, Deford has been elected to the Hall of Fame of the National Association of Sportscasters and Sportswriters. Six times Deford was voted by his peers as US Sportswriter of The Year. The *American Journalism Review* has likewise cited him as the nation's finest sportswriter, and twice he was voted Magazine Writer of The Year by the *Washington Journalism Review*.

Deford has also been presented with the National Magazine Award for profiles, a Christopher Award, and journalism Honor Awards from the University of Missouri and Northeastern University, and he has received many honorary degrees. *The Sporting News* has described Deford as "the most influential sports voice among members of the print media," and the magazine *GQ* has called him, simply, "the world's greatest sportswriter." In broadcast, Deford has won both an Emmy and a George Foster Peabody Award.

For sixteen years, Deford served as national chairman of the Cystic Fibrosis Foundation, and he remains chairman *emeritus*. He resides in Westport, Connecticut with his wife, Carol. They have two grown children – a son, Christian, and a daughter, Scarlet. A native of Baltimore, Deford is a graduate of Princeton University, where he has taught in American Studies.



Join us for a Book Signing!
Wednesday, October 5 at 11:30 AM
Exhibit Hall – Member Services
Booth 1221

2011 CNS ANNUAL MEETING COMMITTEE



Annual Meeting Chairman
Russell R. Lonser



Scientific Program Chairman
Ganesh Rao

Vice Scientific Program Chairman
Alan M. Scarrow

**Guest Society and International Partner
Spanish Society of Neurosurgery**

Saleem I. Abdulrauf
Juan Barcia
Juan Fernandez-Miranda
Brian L. Hoh
Miguel Manrique

General Scientific Sessions

George I. Jallo, Co-Chair
Michael Y. Wang, Co-Chair

Consensus Sessions

John A. Boockvar, Co-Chair
Elad I. Levy, Co-Chair

Neurosurgical Forum

James S. Harrop, Co-Chair
Jason P. Sheehan, Co-Chair

Section Representatives

Council of State Neurosurgical Societies
Michael P. Steinmetz

Section on Cerebrovascular Surgery
Nicholas Bambakidis
Ketan R. Bulsara

**Section on Disorders of the Spine and
Peripheral Nerves**
Frank La Marca
Michael Y. Wang

**Section on Neurotrauma and
Critical Care**
Eve C. Tsai

**Section on Pediatric
Neurological Surgery**
Mark D. Krieger

Section on Pain
Alon Y. Mogilner

**Section on Stereotactic and
Functional Neurosurgery**
Aviva Abosch

Section on Tumors
Frederick F. Lang

**Information Technology Advisory
Committee**
Brian T. Ragel
Michael P. Steinmetz

Section Sessions
Mark D. Krieger, Co-Chair
Julie G. Pilitsis, Co-Chair

Practical Courses
Ashok R. Asthagiri, Co-Chair
Vinay Deshmukh, Co-Chair

Luncheon Seminars
Costas G. Hadjipayanis,
Co-Chair
Odette Harris, Co-Chair

Evening Sessions

Zoher Ghogawala, Co-Chair
James K. Liu, Co-Chair
James S. Harrop
Ashwini D. Sharan

Special Courses

Aviva Abosch, Co-Chair
Bernard R. Bendok, Co-Chair

3-D Video Presentations

Frank S. Bishop, Co-Chair
Steven N. Kalkanis, Co-Chair

Live Surgery Symposium

Brian T. Ragel, Chairman

Resident SANS Challenge

Zachary N. Litvack, Co-Chair
Jonathan D. Sherman,
Co-Chair

Moderator Committee

Brian Lim Hoh, Chairman

Sergeant At Arms

Nicholas J. Szerlip, Chairman

Resident Liaison

Gautam U. Mehta, Chairman

Affiliates Liaison

Zoher Ghogawala, Chairman

CME/Education Chair

Jamie S. Ullman

Knowledge Gap Committee

Zoher Ghogawala, Chairman
Holly Gilmer
Brian Lim Hoh
Steven Kalkanis
Nader Pouratian
Clemens Schirmer
Ed Smith
Marjorie Wang

Auxiliary Program President

Gale England, MD

Allied Health Care

CME Liaison

Andrea Strayer, MSN, APNP,
CNRN

2011 CNS EXECUTIVE OFFICERS AND COMMITTEE



Christopher C. Getch, MD
President



Christopher E. Wolfla, MD
President-Elect



Saleem I. Abdulrauf, MD, FACS
Vice-President



Nathan R. Selden, MD, PhD, FACS, FAAP
Secretary



Daniel K. Resnick, MD
Treasurer



Gerald E. Rodts, Jr., MD
Past President



Front Row:
Ali R. Rezai, MD
Russell L. Lonser, MD
Nathan R. Selden, MD, PhD,
FACS, FAAP
Daniel K. Resnick, MD
Christopher C. Getch, MD
Saleem I. Abdulrauf, MD, FACS

Christopher E. Wolfla, MD
Gerald E. Rodts, Jr., MD
Jamie Sue Ullman, MD, FACS
Ashwini Dayal Sharan, MD

Second Row:
Catherine A. Mazzola, MD
Steven N. Kalkanis, MD

Michael P. Steinmetz, MD
Ganesh Rao, MD
Brian T. Ragel, MD
James S. Harrop, MD, FACS
Ricardo J. Komotar, MD
Mark E. Linskey, MD
Ashok R. Asthagiri, MD

Back Row:
Zohar Ghogawala, MD
Elad I. Levy, MD, FACS, FAHA
Alan M. Scarrow, MD, JD

Not Pictured:
Anil Nanda, MD, FACS
Jason P. Sheehan, MD, PhD, FACS

2011 CNS Executive Officers and Committee

2011 STANDING COMMITTEES

Awards Committee

Gerald E. Rodts, Jr.
Chair
P. David Adelson
Anthony L. Asher

Bylaws Committee

Elad I. Levy, Chair

Clinical Neurosurgery Editor Committee

Gerald A. Grant, Editor
Todd C. Hankinson
Robert A. Mericle

Compliance and Ethics Committee Roster

Alan M. Scarrow, Chair
Richard W. Byrne
E. Hunter Dyer
Richard G. Fessler
Christopher C. Getch
Elad I. Levy
Gregory J. Przybylski
John H. Sampson
Gary R. Simonds

Congress Quarterly Editorial Board

James S. Harrop, Editor
Aviva Abosch
Edward C. Benzel
Nicholas M. Boulis
L. Fernando Gonzalez
Costas George
Hadjipanayis
Zachary N. Litvack
Andre Machado
Srinivas K. Prasad
Charles J. Prestigiacomo
Alfredo
Quinones-Hinojosa
Jason M. Schwalb
Daniel M. Sciubba
Ashwini Dayal Sharan
Gary R. Simonds
Jamie Sue Ullman

Education Committee

Jamie Sue Ullman, Chair
Zohar Ghogawala,
Vice Chair
Saleem I. Abdulrauf
Sepideh Amin-Hanjani
Valerie C. Anderson
Anthony L. Asher
Ashok Rajappa Asthagiri
Bernard R. Bendok
Richard W. Byrne
Chun Siang Chen
R. Webster Crowley
William T. Curry
Vinay Deshmukh
Emad N. Eskandar
Daryl R. Fournery
Sarah J. Gaskill
Holly Gilmer
Gerald A. Grant

Costas George
Hadjipanayis
Odette Harris
James S. Harrop
Brian Lim Hoh
Steven N. Kalkanis
Mark D. Krieger
John S. Kuo
Elad I. Levy

Zachary N. Litvack
Russell R. Lonser
Joel D. MacDonald
Allen H. Maniker
Catherine A. Mazzola
Alon Y. Mogilner
Shaun T. O'Leary
Nader Pouratian
Srinivas K. Prasad
Stacey Charlene
Quintero Wolfe
Brian T. Ragel
Patricia B. Raksin
Ganesh Rao
Daniel K. Resnick
Charles L. Rosen
Charles A. Sansur
Alan M. Scarrow
Clemens M. Schirmer
Richard P. Schlenk
Nathan R. Selden
Ashwini Dayal Sharan
Jason P. Sheehan
Jonathan D. Sherman
Edward R. Smith
Robert M. Starke
Michael P. Steinmetz
Philip V. Theodosopoulos
Roland A. Torres
Marjorie C. Wang
Michael Y. Wang
Christopher E. Wolfla
A. Samy K. Youssef

Fellowships Committee

Steven N. Kalkanis, Chair
Michele Renee Aizenberg
William S. Anderson
Bernard R. Bendok
Thomas C. Chen
Carlos A. David
Ricardo Jorge Komotar
James W. Leiphart
Elad I. Levy
J.D. Mocco
Vikram C. Prabhu
Howard A. Riina
Joshua M. Rosenow
Adnan Hussain Siddiqui
Edward R. Smith
Michael P. Steinmetz
Daniel L. Surdell
Erol Veznedaroglu
Henry H. Woo

Finance Committee

Daniel K. Resnick, Chair
Christopher C. Getch
Joel D. MacDonald

Gerald E. Rodts, Jr.
Nathan R. Selden

Future Meeting Sites Committee

Michael P. Steinmetz,
Chair

Historian and Archives Committee

Issam A. Awad, Chair

Information and Technology Committee

Michael P. Steinmetz,
Chair
Brian T. Ragel, Vice Chair
Samuel Robert Browd
Joseph S. Cheng
Nicholas Frank Marko
Ganesh Rao
Ashwini Dayal Sharan
Jamie Sue Ullman

International Division

Saleem I. Abdulrauf,
Chair
P. David Adelson
Luis Alencar Biurrum
Borba
Jeroen R. Coppens
Aneela Darbar
Ian F. Dunn
Kurt M. Eichholz
Samer K. Elhababa
Gerald A. Grant
Ricardo A. Hanel
Brian Lim Hoh
James K. Liu
Yedathore Mohan
Anil Nanda
Mika Risto Niemela
Tanya M. Quinn
Brian T. Ragel
Ganesh Rao
Deanna Mary
Sasaki-Adams
Karl Schaller
Ashwini Dayal Sharan
Jason P. Sheehan
Michael P. Steinmetz
Sonia Teufack

Membership Committee

Zohar Ghogawala, Chair
Brian Lim Hoh
Catherine A. Mazzola
Michael P. Steinmetz

Nominating Committee

P. David Adelson, Chair
Edward C. Benzel
Gary M. Bloomgarden
E. Antonio Chioccia
Alan R. Cohen
Anil Nanda
Gerald E. Rodts, Jr.

Professional Conduct Committee

Gerald E. Rodts, Jr.
Chair
A. Leland Albright
Gary M. Bloomgarden
Guy L. Clifton
James M. Ecklund

Publications Committee

James S. Harrop, Chair
Zohar Ghogawala
Gerald A. Grant
Nelson M. Oyesiku
Brian T. Ragel
Jamie Sue Ullman

Research Committee

Ashok Rajappa Asthagiri,
Chair
Nicholas M. Boulis
Thomas C. Chen
E. Antonio Chioccia
E. Sander Connolly
R. Webster Crowley
Richard G. Ellenbogen
Zohar Ghogawala
Robert E. Gross
Murat Gunel
Guy M. McKhann
John K. Park
John H. Sampson
Jonas Sheehan
Nicholas Theodore
Michael A. Vogelbaum
Edie E. Zusman

Resident Committee

Catherine A. Mazzola,
Co-Chair
Ricky Madhok, Co-Chair

SANS Lifelong Learning Committee

Jason P. Sheehan, Chair
Ashok Rajappa Asthagiri,
Vice Chair
Osama Ahmed
Wendy Armstrong
Gordon H. Baltuch
Garni Barkhoudarian
Samuel Robert Browd
John Chi
E. Sander Connolly
R. Webster Crowley
Dale Ding
Aaron S. Dumont
Ian F. Dunn
W. Jeffrey Elias
Julie Falardeau
W. Christopher Fox
Gregory N. Fuller
Patrik Gabikian
Hugh Garton
Jaime Gasco-Tamarit
Daniel James Guillaume
William L. Hills
Daniel J. Hoh

Kristopher Gray Hooten
Sarah C. Jost
Adam S. Kanter
Ajit A. Krishnaney
Frederick F. Lang
Elad I. Levy
Zachary N. Litvack
Kenneth C. Liu
James K. Liu
Andre Machado
Gautam U. Mehta
Stephen J. Monteith
Carrie R. Muh
Edward Nemerugut
Nader Pouratian
Suzanne Powell
Vikram C. Prabhu
Srinivas K. Prasad
Daniel M. Prevedello
Alfredo

Quinones-Hinojosa
Craig H. Rabb
Brian T. Ragel
Daniel Refai
Colin Roberts
Oren Sagher
Nader Sanai
Alan M. Scarrow
Michael Schuller
Mitesh Vipin Shah
Sameer A. Sheth
John H. Shin
Gary R. Simonds
Andrew E. Sloan
Justin S. Smith
Edward R. Smith
Robert M. Starke
Bobbie Thompson
Roland A. Torres
Michael A. Vogelbaum
Christopher J. Winfree
David Wrubel
Lynda Jun-San Yang

Strategic Planning Committee

Christopher E. Wolfla,
Chair
Christopher C. Getch
Russell R. Lonser
Ganesh Rao
Daniel K. Resnick
Gerald E. Rodts, Jr.
Nathan R. Selden
Jamie Sue Ullman

Web Editorial Board

Brian T. Ragel, Chair
Michael P. Steinmetz,
Vice Chair
Samuel Robert Browd
Joseph S. Cheng
Nicholas Frank Marko
Ganesh Rao
Ashwini Dayal Sharan
Jamie Sue Ullman

2011 COMMITTEES

Sections of the AANS/CNS

Section on Cerebrovascular Surgery

E. Sander Connolly, Jr., Chair
Sepideh Amin-Hanjani, Chair-Elect
Fady T. Charbel, Vice-Chair
Sean Lavine, Secretary
Brian L. Hoh, Treasurer
Murat Gunel, Past Chair

Section on Disorders of the Spine and Peripheral Nerves

Christopher E. Wolfla, Chair
Joseph S. Cheng, Chair-Elect
Praveen Mummaneni, Secretary
R. John Hurlbert, Treasurer
Ziya L. Gokaslan, Past Chair

Section on Neurotrauma and Critical Care

Shelly D. Timmons, Chair
Geoffrey T. Manley, Chair-Elect
Jaime Sue Ullman, Secretary/Treasurer
Michael G. Fehlings, Past Chair

Section on Pain

Christopher J. Winfree, Chair
Julie Pilitsis, Vice-Chair
Andre Machado, Secretary-Treasurer
Alon Y. Mogilner, Past Chair

Section on Pediatric Neurological Surgery

Alan R. Cohen, Chair
Bruce A. Kaufman, Chair-Elect
Sarah J. Gaskill, Secretary
Mark Proctor, Treasurer
Ann-Christine Duhaime, Past Chair

Section on Stereotactic and Functional Neurosurgery

Ali R. Rezaei, Chair
Konstantin V. Slavin, Vice-Chair
Aviva Abosch, Secretary-Treasurer
Phillip A. Starr, Past Chair

Section on Tumors

Frederick F. Lang, Jr., Chair
Frederick Barker, Secretary-Treasurer
Jeffrey N. Bruce, Past Chair

AANS/CNS Committees

AANS/CNS Guidelines Committee

Mark E. Linskey, Chair

Coding and Reimbursement Committee

R. Patrick Jacob, Chair

Council of State Neurosurgical Societies

Deborah L. Benzil, Chair

Committee on Military Neurosurgeons

Michael K. Rosner, Chair

Drugs and Devices Committee

Richard G. Fessler, Chair

Emergency Neurosurgical Care Regionalization Task Force

Shelly D. Timmons, Chair

Quality Improvement Workgroup

John Joseph Knightly, Chair

Washington Committee for Neurological Surgery

Alex B. Valadka, Chair
Katie Orrico, Director, Washington Office

CNS Representatives to other Organizations

American Board of Neurological Surgery

Daniel L. Barrow
Nelson M. Oyesiku
Craig A. Van Der Veer

American College of Surgeons

Nelson M. Oyesiku

ACS Advisory Council for Neurological Surgery

Alex B. Valadka

Brain Attack Coalition

C. Michael Cawley, III
Mark N. Hadley

American Medical Association

Philip W. Tally, Delegate
Ann R. Stroink, Alternate Delegate

AMA Young Physicians Committee

David F. Jimenez

AMA CPT Editorial Panel

Joseph S. Cheng, Advisory

AMA Relative Value Update Committee (RUC)

John Ratliff, Advisory

National Institute of Neurological Disorders and Stroke (NINDS)

John K. Park

Neurovascular Coalition

John A. Wilson

CNS/ThinkFirst Foundation Liaison

Hugh Garton

CNS/Washington Committee (CNS Appointee)

Alan M. Scarrow
Michael P. Steinmetz
Alex B. Valadka

Women in Neurosurgery

Aviva Abosch

World Federation of Neurosurgical Societies

Douglas S. Kondziolka
Nelson M. Oyesiku

AWARD WINNERS

Distinguished Service Award Winners

Lycurgus M. Davey	1966
Walter S. Lockhart Jr.	1969
Edward J. Bishop	1970
George Ablin	1971
William S. Coxe	1973
J. F. Ross Fleming	1975
Perry Black	1977
William A. Buchheit	1979
Edwin Amyes	1980
Edward F. Downing	1984
J. Charles Rich	1986
Ronald I. Apfelbaum	1987
E. Fletcher Eyster	1988
Fremont P. Wirth	1989
Merwyn Bagan	1990
Roy W. Black	1992
Russell L. Travis	1993
Steven L. Giannotta	1995
John Thompson	1996
Charles L. Plante	1997
Robert H. Wilkins	1998
Gregory D. Willard	2000
Richard Perrin	2001
Laurie L. Behncke	2002
Katie O. Orrico	2003
Albert L. Rhoton, Jr.	2004
Beverly C. Walters	2005
CNS Auxiliary	2006
Rodrick Faccio	2007
Troy M. Tippet	2008
Think First Foundation	2009
Alex B. Valadka	2010

Past CNS Founders' Laurel Recipients

David G. Piepgras	2004
John A. Jane, Sr.	2005
Albert L. Rhoton, Jr.	2006
Tetsuo Kanno	2007
David G. Kline	2008
L. Nelson Hopkins, III	2009
Robert F. Spetzler	2010

CNS Resident Award Winners

Arthur I. Kobrine	1974
Stephen Brem	1975
Philip H. Gutin	1976
Robert F. Spetzler	1977
Martin G. Luken, III	1978
George R. Prioleau	1979
Larry V. Carson	1980
Ted S. Keller	1981
Mervin P. Kril	1982
J. F. Graham	1983
Fredric Meyer	1984
Emily D. Friedman	1985
Victoria C. Neave	1986
Lew Disney	1987
Martin E. Weinand	1988
Nayef R.F. Al-Rodhan	1989
Ivar Mendez	1990
Captain Charles Miller	1991
Dante J. Morassutti	1992
Stephen E. Doran	1993
Ennio Antonio Chiocca	1994
Grant P. Sinson	1995
David W. Pincus	1996
Andrew K. Metzger	1997
Robert M. Friedlander	1998
Kelly D. Foote	1999
Abhaya Kulkarni	2000
Kadir Erkman	2001
Nitin Tandon	2002
Malini Narayanan	2003
Gabriel C. Tender	2004
Manish K. Aghi	2005
John A. Cowan, Jr.	2006
Hongyan Jenny Zou	2007
Dimitris G. Placantonakis	2008
Thomas Santarius	2009
Matthew J. McGirt	2010

CNS Clinical Investigation Fellowship Award Winners

P. David Adelson	1998
Peter C. Gerszten	1999
Abhaya Kulkarni	2000
Peter D. Angevine	2001
Masaki Oishi	2002
Vishal C. Gala	2003
J D. Mocco	2004
Joshua Robert Dusick	2005
Eric S. Stiner	2006
Rahul Jandial	2007
Edward F. Chang	2008
Eric C. Chang	2009

CNS Clinical Fellowship Award Winners

Brian Andrews	1987	James K. Liu	2005
Charles L. Branch, Jr.	1987	Alexander M.I. Mason	2005
Randall Powell	1987	Sanjay Mongia	2005
Eric L. Zager	1988	Richard Reed	2005
Jonathan E. Hodes	1989	John H. Chi	2006
James T. Rutka	1989	Andrea Jea	2006
Claudio A. Feler	1990	Eric C. Leuthardt	2006
Mazen Khayata	1990	Sharad Rajpal	2006
Prem K. Pillay	1991	Gordon T. Sakamoto	2006
Isabelle M. Germano	1992	Nader Sanai	2006
Howard C. Chandler, Jr.	1993	Eric Stiner	2007
Nayef Al-Rodhan	1993	Sumit Das	2007
John D. Day	1994	Brad Elder	2007
Gregory J. Przybylski	1994	Daniel Orringer	2007
Jason A. Brodkey	1995	Ben Waldau	2007
Fotios D. Vrionis	1995	Vaninder Chhabra	2007
Bruce E. Pollock	1996	Isaac Yang	2007
John H. Wong	1996	Patrick Hsieh	2007
Ali R. Rezai	1997	Iyla Laufer	2007
Fernando L. Vale	1997	Deb A. Bhowmick	2008
A. Giancarlo Vishteh	1997	Spiros L. Blackburn	2008
J. Nozipo Maraire	1998	Abraham Boskovitz	2008
Ghassan Bejjani	1998	Edward F. Chang	2008
Daniel Yoshor	1999	Hayan Dayoub	2008
Odette Harris	1999	Johnathan A. Engh	2008
Robert J. Spinner	2000	Gregory W.J. Hawryluk	2008
Gavin W. Britz	2000	Joseph C. Hsieh	2008
William Mitchell	2000	Christopher A. Iannotti	2008
Alan Boulos	2000	Jody Leonardo	2008
James McInerney	2001	Timothy H. Lucas, II	2008
Lynda Jun-San Yang	2001	Cian J. O'Kelly	2008
Geoffrey P. Zubay	2001	Chirag Patil	2008
Diana Barrett-Wiseman	2002	Angel N. Boev	2009
Alexandra J. Golby	2002	David W. Cadotte	2009
G. Michael Lemole, Jr.	2002	Eric C. Chang	2009
Charles Y. Liu	2002	Azadeh Farin	2009
John C. Wellons, III	2002	Marie-Noëllé Hérbert-Blouin	2009
Aurangzeb Nagy	2003	Kristopher Kahle	2009
Deepa Soni	2003	Jared Knopman	2009
Elizabeth Tyler-Kabara	2003	Ali K. Ozturk	2009
Samir Lapsiwala	2003	Nirav N. Patel	2009
Joshua P. Medow	2003	Gabriel Zada	2009
Gyorgy Szieifert	2003	Adib A. Abla	2010
Richard Benjamin Rodgers	2004	Jason J. Chang	2010
David M. Hasan	2004	Douglas J. Cook	2010
Karim Mukhida	2004	Arnold B. Etame	2010
Carlos A. Bagley	2004	Betsy D. Hughes	2010
John F. Hamilton	2004	Kristopher T. Kahle	2010
Henry E. Aryan	2005	Tyler J. Kenning	2010
Jorge A. Gonzalez-Martinez	2005	Alexander A. Khalessi	2010
Jeffrey J. Laurent	2005	Sabareesh K. Natarajan	2010
		Kenneth V. Snyder	2010

ANNUAL MEETING HISTORY

Past Presidents of the CNS

Elmer S. Schultz*	1951
Hendrik J. Svien*	1952
Nathaniel R. Hollister	1953
James R. Gay	1954
Donald B. Sweeney*	1955
Bland W. Cannon*	1956
Frederick C. Rehfeldt*	1957
Raymond K. Thompson*	1958
Philip D. Gordy	1959
Thomas M. Marshall	1960
Martin P. Sayers	1961
Richard L. DeSaussure*	1962
A. Roy Tyrer, Jr.*	1963
Edward C. Weiford*	1964
Gordon van der Noort*	1965
William H. Mosberg, Jr.*	1966
John R. Russell*	1967
John Shillito, Jr.	1968
Paul C. Sharkey*	1969
John M. Thompson*	1970
Donald F. Dohn	1971
John N. Meagher*	1972
Bernard S. Patrick	1973
George T. Tindall	1974
James T. Robertson	1975
Robert G. Ojemann*	1976
Bruce F. Sorensen	1977
Albert L. Rhoton, Jr.	1978
David L. Kelly, Jr.	1979
Robert H. Wilkins	1980
J. Fletcher Lee	1981
Donald H. Stewart, Jr.	1982
John M. Tew, Jr.	1983
Edward R. Laws, Jr.	1984
Robert A. Ratcheson	1985
Joseph C. Maroon	1986
Donald O. Quest	1987
Christopher B. Shields	1988
J. Michael McWhorter*	1989
Hal L. Hankinson	1990
Michael Salcman	1991
William F. Chandler	1992
Arthur L. Day	1993
Richard A. Roski	1994
Ralph G. Dacey Jr.	1995
Stephen J. Haines	1996
Marc R. Mayberg	1997
William A. Friedman	1998
H. Hunt Batjer	1999
Daniel L. Barrow	2000
Issam A. Awad	2001
Stephen M. Papadopoulos	2002
Mark N. Hadley	2003
Vincent C. Traynelis	2004
Nelson M. Oyesiku	2005
Richard G. Ellenbogen	2006
Douglas Kondziolka	2007
Anthony L. Asher	2008
P. David Adelson	2009
Gerald E. Rodts, Jr.	2010

*indicates deceased

CNS Annual Meeting Past Honored Guests

Herbert Olivecrona*	1952
Sir Geoffrey Jefferson*	1953
Kenneth G. McKenzie*	1954
Carl W. Rand*	1955
Wilder G. Penfield*	1956
Francis Grant*	1957
A. Earl Walker*	1958
William J. German*	1959
Paul C. Bucy*	1960
Eduard A.V. Busch*	1961
Bronson S. Ray*	1962
James L. Poppen*	1963
Edgar A. Kahn*	1964
James C. White*	1965
Hugo Krayenbühl*	1966
W. James Gardner*	1967
Norman M. Dott*	1968
Wallace B. Hamby*	1969
Barnes Woodhall*	1970
Elisha S. Gurdjian*	1971
Francis Murphey*	1972
Henry G. Schwartz*	1973
Guy L. Odom*	1974
William H. Sweet*	1975
Lyle A. French*	1976
Richard C. Schneider*	1977
Charles G. Drake*	1978
Frank H. Mayfield*	1979
Eben Alexander, Jr.*	1980
J. Garber Galbraith*	1981
Keiji Sano	1982
C. Miller Fisher	1983
Hugo V. Rizzoli	1984
Walter E. Dandy*	1984
Sidney Goldring*	1985
M. Gazi Yasargil	1986
Thomas W. Langfitt*	1987
Lindsay Symon	1988
Thoralf M. Sundt, Jr.*	1989
Charles B. Wilson	1990
Bennett M. Stein	1991
Robert G. Ojemann*	1992
Albert L. Rhoton, Jr.	1993
Robert F. Spetzler	1994
John A. Jane, Sr.	1995
Peter J. Jannetta	1996
Nicholas T. Zervas	1997
John M. Tew, Jr.	1998
Duke S. Samson	1999
Edward R. Laws, Jr.	2000
Michael L.J. Apuzzo	2001
Volker K.H. Sonntag	2002
Julian T. Hoff*	2003
Arnold H. Menezes	2004
Roberto C. Heros	2005
Peter M. Black	2006
L. Dade Lunsford	2007
William F. Chandler	2008
James T. Rutka	2009
Daniel L. Barrow	2010

*indicates deceased

Past Annual Meeting Sites

St. Louis (Founders' Meeting)	1951
Memphis	1951
Chicago	1952
New Orleans	1953
New York	1954
Los Angeles	1955
Chicago	1956
Washington, DC	1957
San Francisco	1958
Miami	1959
Chicago	1960
New York	1961
Houston	1962
Denver	1963
Miami	1964
Chicago	1965
San Juan	1966
San Francisco	1967
Toronto	1968
Boston	1969
St. Louis	1970
Miami	1971
Denver	1972
Honolulu	1973
Vancouver	1974
Atlanta	1975
New Orleans	1976
San Francisco	1977
Washington, DC	1978
Las Vegas	1979
Houston	1980
Los Angeles	1981
Toronto	1982
Chicago	1983
New York	1984
Honolulu	1985
New Orleans	1986
Baltimore	1987
Seattle	1988
Atlanta	1989
Los Angeles	1990
Orlando	1991
Washington, DC	1992
Vancouver	1993
Chicago	1994
San Francisco	1995
Montreal	1996
New Orleans	1997
Seattle	1998
Boston	1999
San Antonio	2000
San Diego	2001
Philadelphia	2002
Denver	2003
San Francisco	2004
Boston	2005
Chicago	2006
San Diego	2007
Orlando	2008
New Orleans	2009
San Francisco	2010

FELLOWSHIPS



Kimon Bekelis, MD
CNS Dandy Fellowship

Kimon Bekelis, MD, is currently a second year neurosurgery resident at Dartmouth-Hitchcock Medical Center. After graduating summa cum laude from the University of Athens Medical School he spent a year as a postdoctoral research fellow in neurosurgery at Johns Hopkins Hospital. He has been involved in several projects on non-invasive vascular imaging and localized delivery of molecules to the CNS, as well as in prospective studies on intra and extra cranial cerebrovascular pathology. Dr. Bekelis has a solid interest in cerebrovascular disease and plans to follow a career in open and endovascular academic neurosurgery. With the support of the Dandy Fellowship he will be studying, at Dartmouth, the feasibility of using non-invasive imaging techniques (including PET and nanoparticle assisted MRI scans) in detecting cerebral aneurysm inflammation preoperatively.



Andrea J. Chamczuk, MSc, MD
CNS Cushing Fellowship

Andrea Chamczuk, MSc, MD, originally from Toronto, Canada, completed her undergraduate training at McMaster University and her MSc at the University of Toronto. She obtained her medical degree at Saba University, where she was awarded the distinction of the Saba University Foundation Award. Dr. Chamczuk is currently completing her neurosurgical residency at the University of Buffalo, where she has been granted the UB Resident of the Year Award. She has published and presented her work on neuroendoscopy at multiple national meetings. Against a background of an outstanding introduction to neuroendoscopy, under the tutelage of Drs. W. Grand and J. Leonardo in Buffalo, she will undertake a six month neuroendoscopy clinical fellowship, under the direction of Dr. J.A. Grotenhuis in The Netherlands and Dr. M. Bettag in Germany.



Victor Chang, MD
CNS Spine Fellowship

Victor Chang, MD, is from Houston, Texas. After graduating from high school he enrolled at Stanford University where he obtained a bachelor's degree in Philosophy and Biology. During his time at Stanford, he was first exposed to neurosurgery and neurosurgical research. From Stanford he went on to attend the University of Michigan Medical School continuing to pursue his interests in neurosurgery, and eventually matched at Henry Ford Hospital in Detroit, Michigan. During his time at Henry Ford, he collaborated with the Herrick-Davis Motion Analysis Laboratory studying the effects of cervical fusion at adjacent segments in post-ACDF patients. Through use of a biplane X-ray system they are able to measure three dimensional motion with the goal of illustrating the biomechanical processes that contribute to adjacent segment disease.



Jonathan Choi, MD
CNS Functional Fellowship

Jonathan Choi, MD, is a fourth year neurosurgery resident at Duke University Medical Center, Durham, NC. He was born in Chicago, IL and grew up in Oklahoma. His undergraduate training was at Massachusetts Institute of Technology where he studied biology. He then attended Duke University for medical school. He was awarded the Talmage Peele award for outstanding neurobiology research as a medical student for work on the relationships between speech and music. Jonathan's current neurosurgical interests are in deep brain stimulation and in minimally invasive spine surgery. Outside of the hospital and lab, Jonathan enjoys traveling around the world with his fiancée, Wenjing, and spending time with their golden doodle, Plato.



Arthur P. Chou, MD, PhD
CNS Wilder Penfield Fellowship

Arthur Chou, MD, PhD, is currently a third year neurosurgery resident at UCLA. He is originally from Taiwan and grew up in Los Angeles. He received his bachelor's degree in biochemistry from the University of California at Riverside in 1999 and subsequently enrolled in the Medical Scientist Training Program at the UCLA School of Medicine. He received his PhD in neuroscience in 2006 and his MD degree in 2008. He is currently conducting research in neuro-oncology under the mentorship of Dr. Linda Liau at UCLA. After residency, Dr. Chou plans to pursue a career in academic neurosurgery focusing on malignant brain tumors. His recreational interests include cycling, swimming, and snowboarding.



Katharine M. Cronk, MD, PhD
CNS Tumor Fellowship

Katharine Cronk, MD, PhD, received a BS in Chemical Engineering from Columbia University. She later earned a PhD from Albany Medical College, exploring the role of tyrosine kinase receptors in the development of the peripheral nervous system with Dr. Frank Rice. Later, she returned to Columbia Physicians and Surgeons for an MD, during which she worked with Dr. Jeffrey Bruce looking at receptor expression on gliomas as potential pharmaceutical targets. She is currently a PGY-5 at the Barrow Neurological Institute where she is exploring the affects of radiation on the development of white matter progenitor cells using novel techniques in the Barrow Brain Tumor Research Center with Dr. Nader Sanai. She is very grateful to be the recipient of this CNS award.

FELLOWSHIPS



Vassilios G. Dimopoulos, MD
CNS Functional Fellowship

Vassilios Dimopoulos, MD, is currently a fifth year resident in neurosurgery at the University of Rochester. He received his medical degree from the University of Patras in Greece. He served as a flight surgeon in the Hellenic Air Force.

Dr. Dimopoulos spent five years as a neurosurgical clinical fellow in the Medical Center of Central Georgia. His research activity has resulted in 26 publications in peer review journals. With this CNS Functional Fellowship, Dr. Dimopoulos plans to study the *in vivo* role of astrocyte derived adenosine in Deep Brain Stimulation, under the guidance of Dr. Nedergaard and Dr. Huang. Dr. Dimopoulos' current research interests include DBS effect on tremor, and the role of astrocytes in the pathogenesis of tremor.



James K. Liu, MD
CNS Tumor Fellowship

James Liu, MD, is currently a sixth year neurosurgical resident at the Cleveland Clinic. He obtained his undergraduate degree in Cell and Molecular Biology from the University of Michigan. He then received his medical degree from Case

Western Reserve University, during which time he conducted research using phage display to help create modified viral vectors for targeting neuronal membranes. During his fellowship year, he will utilize phage display techniques to design novel treatment strategies targeting glioblastoma stem cells in the laboratory of Dr. Jeremy Rich in the Department of Stem Cell Biology and Regenerative Medicine. He plans to pursue a fellowship in neurosurgical oncology following the completion of his residency training.



Shawn Hervey-Jumper, MD
CNS Wilder Penfield Fellowship

Shawn Hervey-Jumper, MD, is a neurosurgery resident at the University of Michigan. At Oakwood University, he completed a Bachelor's in Science in Biology before pursuing a Medical

Doctorate at The Ohio State University College of Medicine. At Ohio State he was elected into the Alpha Omega Alpha Honor Society and studied WNT signaling in glioblastoma in the laboratory of Dr. Chiocca before graduating Magna Cum Laude. In residency, Dr. Hervey-Jumper became interested in community outreach and translational neuro-oncology. Through local philanthropic support he co-founded the "Medical Mentors Program", in which elementary classrooms are sponsored and mentored by resident volunteers. With NIH/NCI support, and mentorship from Drs. Karin Muraszko and Xing Fan, he is investigating the role of microRNA deregulation in malignant gliomas with particular interest in their potential as noninvasive tumor biomarkers.



Ali K. Ozturk, MD
CNS Vascular Fellowship

Ali K. Ozturk, MD, is currently a sixth year neurosurgery resident at Yale University Department of Neurosurgery. He received his BA degree from Johns Hopkins University, and his MD degree from Yale University School of Medicine.

Under the mentorship of Dr. Murat Gunel, he has focused his research on the genetic foundation of vascular diseases of the brain, specifically intracranial aneurysms and cavernous malformations. He is pleased to be the recipient of the 2009-2010 and 2011-2012 CNS cerebrovascular awards.



Peter Kan, MD
CNS Vascular Fellowship

Peter Kan, MD, graduated from the University of Toronto School of Medicine and then pursued neurosurgical training at the University of Utah where he also completed a Masters of Public Health. He became a Fellow of the Royal College of

Physicians and Surgeons of Canada prior to starting his endovascular fellowship at the University at Buffalo. There Dr. Kan developed a research interest in the application of robotics in endovascular neurosurgery and the use of high-fidelity simulation in endovascular training. Upon the completion of his fellowship, he would like to pursue a career in academic vascular neurosurgery, while keeping an active role in translational and educational research.



Timothy R. Smith, MD, PhD
CNS Socioeconomic Fellowship

Timothy Smith, MD, PhD, is currently a fifth year neurosurgery resident at Northwestern University in Chicago. He was born in Tuscola, Illinois and attended the University of Illinois and obtained a BS in Human Physiology. Dr. Smith went

on to earn a PhD in Health Science and Policy from The University of California, Irvine, and an MD from UCLA. Most recently, he has just completed an MPH in Quantitative Methods from Harvard University. He believes that the foundation of all clinical practice and health policy should be solid research. His educational pathway has created a profound interest in the socioeconomic aspects of neurological surgery. Specifically, he researches the practice of defensive medicine, and its financial impact on health care.

FELLOWSHIPS



Zachary A. Smith, MD
CNS Spine Fellowship

Zachary Smith, MD, received his undergraduate degree in molecular biology and biochemistry as a Presidential Scholar from Dartmouth College. He then pursued his medical training at UCLA Medical School where he additionally received his neurosurgical degree. At UCLA, he developed his initial interest in minimally invasive spine under the mentorship of Dr. Larry Khoo. He will use the support of the CNS Spine Fellowship to pursue a clinical fellowship in Minimally Invasive and Complex Spine with Dr. Richard G. Fessler at Northwestern Medical Center. In tandem with clinical training, the CNS Spine Fellowship will allow him to pursue a biomechanical research study specifically addressing a comparison of minimally invasive vs. open laminectomy for lumbar decompression. He is grateful for this opportunity provided by the Congress of Neurological Surgeons.



Monique J. Vanaman, MD
CNS Spine Fellowship

Monique Vanaman, MD, is currently a third-year neurosurgery resident at the University of Michigan, Ann Arbor. She received her undergraduate degree in women's studies from the University of California, Los Angeles. She then attended medical school and spent a year as a Doris Duke Clinic Research Fellow at Columbia University. With the support of the CNS Spine Fellowship and the mentorship of Drs. Stephen Sullivan, Paul Park and Frank LaMarca, she will develop and validate a model-based simulator for training residents to perform minimally invasive microdissectomies.



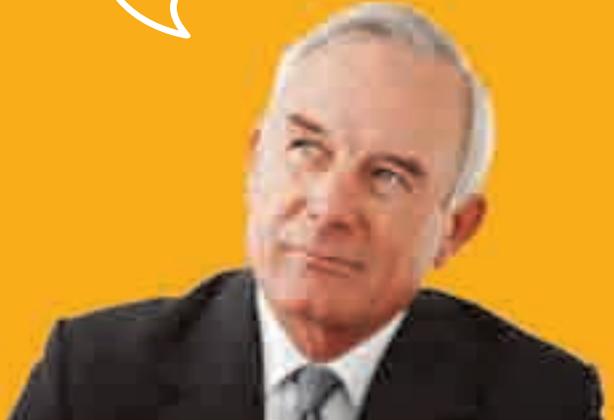
Neil Datta
CSNS Medical Student Summer Fellowship in Socioeconomic Research

Neil Datta is currently a medical student at Boston University School of Medicine (BUSM). He is a devotee of medical sciences, in particular neuroscience and neurosurgery. In fact, he has been involved with movement disorder related research at BUSM and engaged in research regarding cerebral hemorrhages during a 2010 summer research fellowship. During his undergraduate career, he was an editor of multiple science and neurology magazines (e.g. Synapse, The Nerve); he continued his leadership in the neurosciences into medical school by becoming the president of both the Student Interest Group in Neurology (SIGN) and the Clinical Neuroscience Society at Boston University School of Medicine. Now, he seeks to expand his knowledge in neurosurgery and pursue his interest in healthcare reform.

Announcing the 2012-2013 CNS Fellowships!

Log on to www.cns.org for details and to submit your application. **Deadline: November 30, 2011**

*... Is Dr. Lee here
at the 2011 CNS
Annual Meeting?*



*Stay connected
with the CNS Mobile
Meeting Guide!*

- ★ See who is registered.
- ★ Send messages to other attendees.



*iPhone and iPad users may download the app
from the Apple App Store.*

*Connect with your Android and laptop at
<http://m.cns.org>!*

CORPORATE SUPPORTERS OF THE CNS ANNUAL MEETING AND THE PRACTICAL COURSES

The following companies have provided an educational grant in support of the 2011 CNS Annual Meeting.

Abbott Vascular
Codman, a Johnson & Johnson Company
DePuy Spine, a Johnson & Johnson Company
Globus
Integra
K2M
Lippincott Williams and Wilkins – WKH
Stryker
Synthes Spine

The following companies have provided support for the CNS Practical Courses.

Ad-Tech Medical Instrument Corporation
Alpha Omega
Brainlab, Inc.
Carl Zeiss Meditec, Inc.
Codman, a Johnson & Johnson Company
DePuy Spine, Inc., a Johnson & Johnson Company
Elekta, Inc.
Fred Haer Corporation (FHC)
Globus Medical Inc.
ImmersiveTouch
Integra
Medtronic Navigation
Medtronic
Medtronic NT
MRI Interventions, Inc.
Nuvasive
Stryker CMF
Stryker Neuro, Spine, ENT
Stryker Spine
Synthes Anspach
Synthes CMF
Synthes Spine
TrueVision Systems, Inc.
Varian Medical Systems

CONTINUING MEDICAL EDUCATION

CNS 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 and performance.

At the conclusion of the 2011 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 or performance.

Educational Formats

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 demonstrating clinical techniques and applications via technology, models and simulation. Hands-on Practical Courses will provide participants an opportunity to improve surgical skills by applying and demonstrating learned techniques. Practical Courses also provide an opportunity to review case-based complex issues and discuss potential solutions.

- ★ Practical Courses are offered Saturday, October 1 and Sunday, October 2.

General Scientific Session, Section Session, Special Course, Luncheon Seminar and Dinner Seminar Lectures

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. They will present basic skills and information you can apply in your daily practice and professional life.

- ★ General Scientific Sessions, Section Sessions and Special Courses are offered Sunday, October 2 through Thursday, October 6.
- ★ Luncheon Seminars are offered Monday, October 3 through Wednesday, October 5.
- ★ Dinner Seminars are offered on Tuesday, October 4 and Wednesday, October 5.

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 then an opportunity is provided to share your perspective on the optimal management of these disorders as a consensus is reached for the best application of surgical strategies in a variety of clinical scenarios.

- ★ Consensus Sessions are offered on Monday, October 3 and Wednesday, October 5.

Case-Based Education

Challenging neurosurgical cases will be reviewed and discussed in a variety of innovative formats including 3-D Video Presentation, Live Surgical Presentation and Panel Discussions.

- ★ Monday, October 3, The Art of Managing Complex Cranial Cases: A 3-D Video Presentation.
- ★ Tuesday, October 4, Unyielding Progress: Carotid Stenting (Findings and Practice) – Live Surgical Presentation during the General Scientific Session.
- ★ Tuesday, October 4, **Operative NEUROSURGERY®**.

Original Scientific Program

Scientific abstract presentations offer original science, ground-breaking research and the best clinical and basic neurosurgical science in the CNS Original Science Program allowing for audience questions and moderated discussions.

- ★ Monday, October 3, Oral Presentations by subspecialty and the CNS Neurosurgical Forum.
- ★ Wednesday, October 5, Oral Presentations in a multidisciplinary session.

CONTINUING MEDICAL EDUCATION

Accreditation Statement

The Congress of Neurological Surgeons is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA Credit Designation Statement

US Physicians: The CNS designates this live activity for a maximum of 40.75 *AMA PRA Category 1 Credit(s)*[™]. Physicians should only claim credit commensurate with the extent of their participation in the activity.

CME Credit

The same number of category 1 credits awarded will be applied toward the Continuing Education Award in Neurosurgery.

*A maximum of 21.25 *AMA PRA Category 1 Credit(s)*[™] may be earned for general sessions only.

ALLIED HEALTH PROFESSIONALS: The CNS cannot designate its Annual Meeting as meeting the criteria for credit for nurses and other allied health professionals. 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 four (4) *AMA PRA Category 1 Credits*[™] for Saturday half-day Practical Courses, a maximum of three-and-a-half (3.5) *AMA PRA Category 1 Credits*[™] for Sunday half-day Practical Courses, and a maximum of seven (7) *AMA PRA Category 1 Credits*[™] for each eligible full-day Sunday Practical Course. Physicians should only claim 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 only claim 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 only claim 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 them on their *AMA PRA* certificate application or apply directly to the AMA for an *AMA PRA Category 1 Credits*[™] certificate.

Claiming CME Credit

Physicians should only claim credit for the number of credits for the learning activities at the Annual Meeting in which they actively participated.

The CME Tracking system, at www.cns.org, lets you create and print a CME certificate immediately following the CNS Annual Meeting, while you are still in Washington, DC or from the convenience of your home or office.

Log in using your last name and the e-mail address with which you registered. You will need to enter the number of hours you are claiming for each session you attended including Practical Courses, Luncheon Seminars, Dinner Seminars, General Scientific Sessions, the Original Science Program, Special Courses, Section Sessions and The Art of Managing Complex Cranial Cases and **Operative NEUROSURGERY**[®]. Physicians should only claim credit for the number of credits for the learning activities at the Annual Meeting in which they actively participated.

Upon completion of this process, your CME certificate will be sent to you via e-mail at the email address you used at registration and can be printed directly online.

Evaluations

Evaluations are essential to ensure that the Congress of Neurological Surgeons is producing the highest quality medical education. Your feedback is valued and much appreciated in assisting with these efforts.

All evaluations will be available online at www.cns.org shortly after the session has concluded. You will also receive an e-mail with a link to the evaluation web site. You will need to log in using your last name and the e-mail address with which you registered.

Disclosures

The Accreditation Council for Continuing Medical Education Updated 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. Before the activity, all speakers will disclose the existence of any applicable financial interests and/or commercial relationships. Disclosures can also be found on pages 30-39.

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 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. A listing of these disclosures is available on pages 40-41.

DISCLOSURE INFORMATION

The Congress of Neurological Surgeons controls the content and production of this CME activity and attempts to assure the presentation of balanced, objective information. In accordance with the Standards for Commercial Support established by the Accreditation Council for Continuing Medical Education, speakers are asked to disclose any relationship they have with commercial companies which may be related to the content of their lecture.

Speakers who have disclosed a relationship with commercial companies whose products may have a relevance to their presentation are listed below. Planners are designated by ^P and faculty by ^F.

Key:

Faculty = F
Planner = P

Positional Interest Codes:

- | | |
|---------------------|--------------|
| (1) CEO | (5) Employee |
| (2) Consultant | (6) N/A |
| (3) Director | (7) Officer |
| (4) Editorial Board | (8) Owner |

Saleem I. Abdulrauf, MD FACS^{P,F}
Intellectual Fees – Scanlan Inc (6);
Royalty – Scanlan Inc (6)

Aviva Abosch, MD PhD^{P,F}
Consulting Agreement – Boston Scientific (2); Medtronic (2)

P. David Adelson, MD FACS FAAP^{P,F}
Consulting Agreement – Traumatex (2); *Honoraria* – Cyberonics (6)

John Adler, MD^F
Board Trustee or Officer Position – Varian; *Stockholder* – Accuray

Behrooz A. Akbaria, MD^F
Consulting Agreement – DePuy Spine (2); Ellipse (2); K2M (2); Nuvasive (2); *Other* – DePuy Spine (6); Ellipse (6); Growing Spine Foundation (7); Journal of Orthopaedic Science (4); K2M (6); Nuvasive (6); OREF (6); OREF (7); Scoliosis Research Society (7); *Royalty* – DePuy Spine (6)

A. Leland Albright, MD^P
Consulting Agreement – Medtronic (2)

Michael J. Alexander, MD FACS^F
Consulting Agreement – Codman Neurovascular (6); Stryker Neurovascular (6)

Christopher P. Ames, MD^F
Consulting Agreement – DePuy (2); Medtronic (2); Stryker (2); *Royalty* – Aesalgs (2); LAWX (2)

Sepideh Amin-Hanjani, MD^{P,F}
Other – GE Healthcare (6); VasSol, Inc. (6)

Paul Anderson, MD^F
Consulting Agreement – Medtronic (2)

Lilyana Angelov, MD^F
Honoraria – BrainLab

Paul M. Arnold, MD^F
Other – AOSPIKE North America (6)

Adam S. Arthur, MD MPH^F
Consulting Agreement – Codman Neurovascular; EV3 (2); Microvention, Inc.; *Grants* – Microvention, Inc.

Anthony L. Asher, MD FACS^{P,F}
Consulting Agreement – Hyperbranch Medical Technology (2); Pioneer Surgical (2); Salient Medical Technology (2); *Other* – Hyperbranch Medical Technology (6)

James I. Ausman, MD^F
Board Trustee or Officer Position – Future Healthcare Strategies; *Ownership Interest* – Future Healthcare Strategies (1)

Tipu Z. Aziz, MD FRCS^F
Honoraria – Medtronic Inc. (6); St. Jude Medical (6)

Nicholas Bambakidis, MD^{F,P}
Consulting Agreement – Medtronic Sofamor Danek (2);

Nicholas M. Barbaro, MD^F
Other – Elekta (6); National Institutes of Health (NINDS) (6)

Tracy Batchelor, MD^F
Consulting Agreement – EMD-Serono (2)

James E. Baumgartner, MD^F
Other – Cord Blood Registry (6)

James Bender, MD^F
Salary – Immunocellular Therapeutics (7)

Edward C. Benzel, MDP^F
Consulting Agreement – Ortho MEMS (7); *Ownership Interest* – AxioMed (2); *Royalty* – AxioMed (2)

Sigurd Berven, MD^F
Consulting Agreement – Biomet (2); DePuy Spine (2); Medtronic (2); *Ownership Interest* – Acculif (2)

Shay Bess, MD^F
Consulting Agreement – Allosource (6); DePuy Spine (6); *Royalty* – Pioneer (6)

Mark H. Bilsky, MD^F
Royalty – Depuy Spine (2)

Keith L. Black, MD^F
Ownership Interest – Immunocellular Therapeutics (2)

Oheneba Boachie-Adjei, MD^F
Honoraria – K2M (2); Osteotech (6); *Other* – DePuy Spine (6); *Royalty* – DePuy Spine (6); K2M (6)

Christopher Bono, MD^F
Consulting Agreement – Harvard Clinical Research Institute (2); *Royalty* – Informa Health Care (6); Wolter Kluwer (6)

Nicholas M. Boulis, MD^{P,F}
Consulting Agreement – Ceregene (2); Medtronic (2); *Other* – NeuralStem (6)

Charles L. Branch, MD^F
Consulting Agreement – Medtronic (2); *Royalty* – Medtronic (6)

Samuel Robert Browd, MD PhD^F
Other – Medtronic, Inc (6)

M. Ross Bullock, MD PhD^F
Consulting Agreement – Codman (6); Integra (6); Oxygen Biotherapeutics (6); *Grants* – Department of Defense (6)

Douglas C. Burton, MD^F
Consulting Agreement – DePuy Spine (6); *Other* – DePuy Spine (6); *Royalty* – DePuy Spine (6)

Ali Bydon, MD^F
Other – DePuy Spine (6)

Susan Chang, MD^F
Other – Novartis (6); Schering Plough (6)

Jens Chapman, MD^F
Other – Alseres Pharmaceuticals (6); AOSNA (6); HJ Wyss Foundation (6); Medtronic (6); Stryker (6)

Fady T. Charbel, MD^F
Consulting Agreement – Transonic, Inc.; *Stockholder* – Vassol, Inc.

David Charles, MD^F
Consulting Agreement – Allergan (2); Ipsen (2); Medtronic (2); Pfizer (2); *Honoraria* – Teva (6); *Other* – Allergan (6); Medtronic (6)

Thomas C. Chen, MD PhD^F
Ownership Interest – Applied Integrin Sciences (7); Axonology (7); C5Rx (7); NeOnc (7); Tocagen (7); *Salary* – ERC (7); Pharmaco-kinesia (7);

John Chi, MD^{P,F}
Consulting Agreement – Synthes (2)

Dean Chou, MDP
Honoraria – Stryker (2)

Guy L. Clifton, MD^P
Ownership Interest – Baxter (6); Becton Dickinson (8); Johnson and Johnson (8); MedeCoach (8); Novartis (8); Roche Pharmaceuticals (8); Sanofi Aventis (8); Summit Air Ambulance (8)

Kevin M. Cockroft, MD^F
Consulting Agreement – ev3 Neurovascular/Covidien (6); *Honoraria* – Bayer-Nippon (6); *Other* – ev3 Neurovascular (6)

DISCLOSURE INFORMATION

Chaim B. Colen, MD PhD^F

Ownership Interest – Colen Publishing, LLC (8)

William M. Coplin, MD^F

Consulting Agreement – Astellas Pharma US (2); EKR Therapeutics (2); Integra Neurosciences (2)

Domagoj Coric, MD^F

Consulting Agreement – Depuy Spine (2); Pioneer Surgical (2); Spinal Motion (2); Spine Wave (2)

Terry Coyne, MD^F

Intellectual Fees – Medtronic Inc (6)

Ralph G. Dacey, MD^F

Consulting Agreement – Lanx, Inc (2); Pulse Therapeutics, Inc (2); *Other* – Endostim, Inc (3); Neuroolutions, Inc. (3); Stereotaxis, Inc (6); *Royalty* – Anspach, Inc (6) Synergetics, Inc (6)

Carlos A. David, MD^F

Consulting Agreement – Codman Neurovascular (2)

Antonio A. F. De Salles, MD PhD^F

Grants – Medtronics; *Honoraria* – BrainLab

Mark B. Dekutoski, MD^F

Consulting Agreement – Mayo Medical Ventures (2); Medtronic (2); *Honoraria* – AO Foundation (6); *Other* – Broadwater Associates CME Group (6); DePuy (6); Medtronic (6); Stryker (6); Synthes (6)

Rick B. Delamarter, MD^F

Royalty – Stryker (2); Synthes (2)

Johnny B. Delashaw, MD^F

Consulting Agreement – Covidien (2)

Franco DeMonte, MD^F

Consulting Agreement – Medtronic

Vinay Deshmukh, MD^P

Consulting Agreement – Pioneer Surgical Technology (6)

Gary A. Dix, MD^F

Consulting Agreement – Alphatec Spine (7); Biomet (2); DePuy Spine (2); SpineWave (2); *Other* – Facet Solutions (7); *Ownership Interest* – Pioneer Surgical (6); *Royalty* – Globus Medical (2)

Ann-Christine Duhaime, MD^F

Grants – National Institutes of Health

E. Hunter Dyer, MD^{P,F}

Ownership Interest – Pioneer Surgical (6)

James M. Ecklund, MD^P

Consulting Agreement – Brainscope (2); *Ownership Interest* – NeuroStrike, LLC (1)

W. Jeffrey Elias, MD^{P,F}

Honoraria – Focused Ultrasound Surgery Foundation (2); *Other* – Focused Ultrasound Surgery Foundation (6)

Michael G. Fehlings, MD PhD FRCS^C FACS^F

Consulting Agreement – Depuy Spine (2); *Royalty* – DePuy (6); Synthes (6)

Richard G. Fessler, MD^{P,F}

Consulting Agreement – Medtronic (2); *Honoraria* – DePuy (6); *Royalty* – DePuy (6); Medtronic (6); Stryker (6)

Joseph A. Fisher, MD^F

Intellectual Fees – Respiract (2)

Kelly D. Foote, MD^F

Other – ANS/St. Jude (6); Medtronic Neurological (6); Neuropace (6)

Fred H. Geisler, MD PhD^F

Consulting Agreement – Aesculap; Medtronics; NuVasive; SI-BONE (6); Spinal Motion; Vertiflex; Zimmer; *Stockholder* – Disc Motion; Impliant

Ziya L. Gokaslan, MD^F

Honoraria – AO North America (7); *Other* – AO North America (6); DePuy (6); Medtronic (6); NREF (6); Spinal Kinetics Stock (8); *Other* – US Spine Stock (8)

John G. Golfinos, MD^F

Consulting Agreement – Stryker (2); *Honoraria* – Medtronic (2); *Ownership Interest* – Viewray (6)

L. Fernando Gonzalez, MD^F

Consulting Agreement – Boston Scientific (2); Johnson and Johnson (2)

Gerald A. Grant, MD^{P,F}

Consulting Agreement – Ethicon (2)

Alexander L. Green, MBBS BSc^F

Honoraria – Medtronic Inc. (6); St. Jude Medical (6)

Michael W. Groff, MD FACS^F

Consulting Agreement – EBI Spine Biomet (2); Smith & Nephew (2); *Royalty* – Depuy Spine (2)

Robert E. Gross, MD PhD^{P,F}

Consulting Agreement – Bayer Healthcare (2); Boston Scientific (2); GeneGrafts (2); St. Judes Medical (2)

Andre Grotenhuis, MD PhD^F

Consulting Agreement – B.Braun Aesculap (2)

Murat Gunel, MD^P

Ownership Interest – M4 Genomics LLC (8)

Munish Gupta, MD^F

Consulting Agreement – DePuy Spine (2); Lanx (2); Osteotech (2); *Honoraria* – AO (2); *Intellectual Fees* – Medtronic (6); *Other* – FOSA (7); *Ownership Interest* – Acrotech (6); Johnson & Johnson (6); Pfizer (6); Pioneer (6); Proctor and Gamble (6); *Royalty* – DePuy Spine (6)

Raphael Guzman, MD^F

Other – Synthes (6)

Costas George Hadjipanayis, MD PhD^{P,F}

Consulting Agreement – Meditech (2)

Regis W. Haid, MD^F

Consulting Agreement – Globus Medical (2); Piedmont Health Care (2); *Other* – Nuvasive (6); Globus Medical; Medtronic Sofamor Danek; *Ownership Interest* – Spine Universe (4); *Royalty* – Medtronic (6); Medtronic (6)

Clement Hamani, MD^F

Consulting Agreement – St Jude Medical (2); *Honoraria* – Medtronic (6); St. Jude Medical (6)

Ricardo A. Hanel, MD PhD^{P,F}

Consulting Agreement – Johnson and Johnson (6); Neurovasx (6)

James S. Harrop, MD^{P,F}

Consulting Agreement – Depuy spine (2); *Honoraria* – Ethicon (6); *Other* – Axiomed (6); Geron (6)

Robert Hart, MD^F

Consulting Agreement – DePuy Spine (6); *Honoraria* – Synthes (6); *Other* – DePuy Spine (6); Medtronic (6); OREF (6); Spine Connect (6); Synthes (6); *Royalty* – Seaspine (6)

Roger Hartl, MD^F

Other – Apatech (6); BrainLab (6); Spinewave (6); Synthes (6)

Elma W. Hawkins, MD^F

Consulting Agreement – Immunocellular Therapeutics (7)

Robert F. Heary, MD^F

Other – Biomet Spine (6); DePuy Spine (6); *Royalty* – Depuy Spine (6); Thieme Medical Publishers (6); Zimmer Spine (6)

Carl B. Heilman, MD^F

Consulting Agreement – Integra (2); Medtronic (2)

Jaimie M. Henderson, MD^F

Honoraria – Medtronic (6); *Other* – Intelect Medical (7); Nevro Corp (7)

Leigh R. Hochberg, MD PhD^F

Other – Cyberkinetics (6)

Kathryn L. Holloway, MD^F

Consulting Agreement – Medtronic (2)

Langston T. Holly, MD^F

Consulting Agreement – Medtronic (6)

L. Nelson Hopkins, MD^F

Consulting Agreement – Abbott Vascular (2); Abbott Vascular (6); AccessClosure (7); Boston Scientific (2); Micrus (2); Micrus (7); W. L. Gore (2); *Honoraria* – BARD (6); Boston Scientific (6); Cleveland Clinic (6); Complete Conference Management (6); Cordis (2); Cordis (6); Memorial Healthcare System (6); SCAI (6); *Ownership Interest* – AccessClosure (6); Boston Scientific (6); Micrus (6); Valor Medical (6)

Richard A. Hosten, MD^F

Honoraria – DePuy Spine (6); *Other* – Axial Biotech (6)

Kade T. Huntsman, MD^F

Consulting Agreement – NuVasive (2)

Jonathan Hyde, MD^F

Consulting Agreement – NuVasive (2)

DISCLOSURE INFORMATION

Robert E. Isaacs, MD^F

Consulting Agreement – Medtronic (2); NuVasive (2); Ownership Interest – Bioshape Solutions (6); Safewire, LLC (6)

Pascal Jabbour, MD^F

Consulting Agreement – Codman Neurovascular (2); EV3 (2)

Michael Janssen, MD^F

Other – AOSNA (6)

Bechir Jarraya, MD^F

Consulting Agreement – Oxford Biomedica (6)

Shazia Javed, MB ChB MRCS^F

Consulting Agreement – Renishaw Plc

Ajay Jawahar, MSc MD^F

Consulting Agreement – K2Medical Inc. (2); SeaSpine (2)

Frances E. Jensen, MD^F

Other – Lundbeck N/A (6)

J. Patrick Johnson, MD^F

Consulting Agreement – ALPHATEC (2); Pioneer Medical (2); SpineWave (2); Other – FlexUSpine (6)

Iain H. Kalfas, MD^F

Royalty – Mako (6)

Adam S. Kanter, MD^{P,F}

Consulting Agreement – Lanx (2); NuVasive (2)

Michael Gordon Kaplitt, MD PhD^F

Consulting Agreement – Medtronic (2); Neurologix (2)

M. Kelleher, MD^F

Salary – Oxford Biomedica (5)

Kaveh Khajavi, MD^F

Honoraria – NuVasive (6)

Mohamad A. Khaled, MD MSurg^F

Other – Focused Ultrasound Surgery Foundations (6)

Sue Kingsman, PhD^F

Ownership Interest – Oxford Biomedica (2)

Zelma H.T. Kiss, MD^F

Other – Medtronic (6)

Eric Klineberg, MD^F

Consulting Agreement – Synthes (6); Honoraria – DePuy Spine (6); Stryker (6); Synthes (6); Other – AO (6); OREF (6); Synthes (6)

Douglas Kondziolka, MD MSc FRCS(C) FACS^F

Consulting Agreement – Elekta (2); Ownership Interest – SciencEngines, Inc (7)

Brian H. Kopell, MD^F

Consulting Agreement – Neurostream Technologies (6); Prism Clinical Imaging (6)

Branko Kopjar, MD^F

Consulting Agreement – Cerapedics, Inc (2); Lanx, Inc. (2); Scient'X (2); SpineMark (2); SpineSmith (6)

Tyler R. Koski, MD^F

Consulting Agreement – Medtronic (6); Honoraria – Depuy; Stryker

Krishna Kumar, MBMS FRCS(C)^F

Honoraria – Boston Scientific (2); Medtronic Inc. (2)

Charles Kuntz, IV, MD^F

Consulting Agreement – Synthes (2); Other – AO Spine – Research and Education (6); Synthes, Stryker Research Education (6); Ownership Interest – Mayfield Clinic, CKIV Alignment (8); Precision Radiotherapy (8); Priority Consult (8); The Christ Hospital Spine Surgery Center (8)

Frank La Marca, MD^F

Consulting Agreement – Biomet (6); Globus (6); Lanx (6); Stryker (6); Honoraria – Medtronic (6)

Virginie Lafage, PhD^F

Other – Nemarix (7); Ownership Interest – Nemarix (8)

David J. Langer, MD^F

Consulting Agreement – ELANA Inc.; Stockholder – Vassol Inc

Giuseppe Lanzino, MD^F

Grants – ev3; Synthes

Paul S. Larson, MD^F

Grants – Surgivision, Inc.; Honoraria – Medtronic, Inc.

Carl Laurysen, MD^F

Royalty – Alphatech (2); Pioneer (2); Spinal Kinetics (2)

Sean Lavine, MDP

Consulting Agreement – Codman Neurovascular (6)

Michael T. Lawton, MD^F

Royalty – Mizuho America (6)

James W. Leiphart, MD^P

Consulting Agreement – EV3 Inc. (2); Other – AO North America (6); Neuropace (6)

Lawrence Lenke, MD^F

Other – DePuy Spine (6); Royalty – Medtronic (6); Quality Medical Publishing (6)

Elad I. Levy, MD FACS FAHA^{P,F}

Consulting Agreement – Codman & Shurtleff, Inc. (2); Cordis; Neurovascular (2); EV3 (2); Micrus Endovascular (2); TheraSyn Sensors, Inc. (2); Honoraria – Boston Scientific (6); Other – Abbott Vascular (6); Boston Scientific (6); Codman & Shurtleff, Inc. (6); Ev3 (6); Micrus Endovascular (6); Ownership Interest – Intratech Medical Ltd. (8); Mynx/Access Closure (8)

Robert M. Levy, MD PhD^F

Consulting Agreement – Bioness Incorporated; Codman & Shurtleff, Inc. (2); Medtronic Neurological; Spinal Modulation; St. Jude Medical Neuromodulation; Stryker; Vertos Medical

Charles J. Limb, MD^F

Consulting Agreement – Advanced Bionics Corporation (6)

Geoffrey S.F. Ling, MD^F

Consulting Agreement – Sanofi (2); Bristol-Myers (2)

Zachary N. Litvack, MD MCR^P

Consulting Agreement – Integra LifeSciences Corp. (2); Gifts – National Brain Tumor Foundation (6); Other – Karl Storz Endoscopy, Inc. (6)

John C. Liu, MD^F

Consulting Agreement – Medtronic (2)

L. Dade Lunsford, MD^F

Consulting Agreement – AB Elekta; Other – Elekta (2); Stockholder – AB Elekta

Joel D. MacDonald, MD^P

Intellectual Fees – Aesculap (6); Other – Medtronic (6); Ownership Interest – Amedica (6)

Andre Machado, MD PhD^{P,F}

Consulting Agreement – IntElect Medical (2); Monteris (2); Ownership Interest – ATI (6); Cardionomics (6); IntElect (6)

William Mack, MD^F

Honoraria – Century Medical (2)

Adel M. Malek, MD PhD^F

Consulting Agreement – Codman Neurovascular (2); Stryker Neurovascular (2)

Adam N. Mamelak, MD^F

Consulting Agreement – Karl Storz Endoscopy (2); VCA Animal Hospital (2)

Antonios Mammis, MD^F

Other – Medtronic Neurologic (6)

Geoffrey T. Manley, MD^{P,F}

Consulting Agreement – Codman (6); Synthes (6); Grants – National Institutes of Health (6); Other – Department of Defense (6); Integra (6)

Jeffrey Marcus, MD^F

Consulting Agreement – Stryker (2)

Martin Marsala, MD^F

Other – Neuralstem Inc. (6)

Neil A. Martin, MD^F

Consulting Agreement – Karl Storz and GCQ Inc. (2)

Todd McCall, MD^F

Consulting Agreement – Aesculap (2)

Michael William McDermott, MD^F

Other – National Institutes of Health (6)

Christopher McPherson, MDP

Ownership Interest – Precision Radiotherapy LLC (8); Priority Consult LLC (8); The Christ Hospital Spine Surgery Center (8); Salary – Mayfield Clinic (5)

Stefan A. Mindea, MD^F

Consulting Agreement – DePuy (6); Medtronic (6)

James Miskin, PhD^F

Salary – Oxford Biomedica (5)

Kyriacos Mitrophanous, PhD^F

Salary – Oxford Biomedica (5)

J D. Mocco, MD^{P,F}

Consulting Agreement – Actelion (2); Edge Therapeutics (2); Nfocus (2); Other – Lazarus Effect (7); Boston Scientific (6); Codman Neurovascular (6)

DISCLOSURE INFORMATION

Alon Y. Mogilner, MD^{P,F}
Consulting Agreement – Medtronic Neurological (2);
Honoraria – Intellect Medical (6)

Praveen V. Mummaneni, MD^F
Consulting Agreement – DePuy Spine (2); Medtronic (2);
Ownership Interest – 2N LLC (8)

Gregory Mundis, MD^F
Consulting Agreement – K2M (6); Nuvasive (6); *Other* – DePuy Spine (6)

Jeffrey A. Murphy, MS^F
Salary – DePuy Orthopedics (5)

Raj K. Narayan, MD, FACS^F
Consulting Agreement – BHR Pharma; Codman; Integra

Pradeep K. Narotam, MD FCS(SA) FRCS(C) FACS^F
Consulting Agreement – Integra Life (6)

Stuart Naylor, MD^F
Salary – Oxford Biomedica (5)

Russ P. Nockels, MD^F
Consulting Agreement – Medtronic (2); *Royalty* – Medtronic (6)

Josef Novotny, PhD^F
Consulting Agreement – AB Elekta (2)

Pierce D. Nunley, MD^F
Consulting Agreement – LDR Spine (2); Spinal Motion (2);
Royalty – K2Medical Inc. (2)

Michael F. O'Brien, MD^F
Consulting Agreement – DePuy Spine (2); Medtronic (2); Osteotech (6); *Intellectual Fees* – DePuy Spine (6); *Ownership Interest* – Axial Biotech (6); *Royalty* – DePuy Spine (6); Medtronic (6)

Hideho Okada, MD PhD^F
Other – Stemline Therapeutics (6)

David O. Okonkwo, MD PhD^F
Consulting Agreement – Lanx (2); Medtronic (2); Synthese (2)

John E. O'Toole, MD^F
Consulting Agreement – Globus Medical, Inc.; Pioneer Surgical; *Royalty* – Globus Medical (2)

Stephane Palfi, MD^F
Consulting Agreement – Oxford Biomedica (6)

Richard D. Penn, MD^F
Ownership Interest – CNS Therapeutics (2)

Frank M. Phillips, MD^F
Consulting Agreement – NuVasive (2); *Royalty* – NuVasive (2)

Laurent Pierot, MD PhD^F
Consulting Agreement – Boston Scientific (2); EV3 (2); Microvention (2)

Luiz Pimenta, MD^F
Consulting Agreement – NuVasive (2); Zyga Tech (2)

Srinivas K. Prasad, MD^{P,F}
Consulting Agreement – Synthes Spine (6); *Honoraria* – Stryker Spine (6)

Graham Price, MBBS BSc^F
Salary – Oxford Biomedica (5)

Gregory J. Przybylski, MD^F
Consulting Agreement – United Healthcare (2); *Honoraria* – Eli Research (6)

Patricia B. Raksin, MD^{P,F}
Other – NIH (6)

Scott Ralph, MD^F
Salary – Oxford Biomedica (5)

John K. Ratliff, MD^{P,F}
Consulting Agreement – Stryker Spine (2); *Ownership Interest* – Johnson and Johnson (6); *Royalty* – Biomet Spine (2)

Daniel Refai, MD^{P,F}
Consulting Agreement – Aesculap Implant Systems (2); Stryker Education (2)

Jean M. Regis, MD^F
Other Financial or Material Support – Accuray, BrainLab, Elekta, Tomotherapy.

Harold L. ReKate, MD^F
Consulting Agreement – Codman Corporation (2)

Ali R. Rezai, MD^{P,F}
Consulting Agreement – Autonomic Technologies (6); Neurologix (6); *Ownership Interest* – Autonomic Technologies (3); IntElect Medical (6); Surgivision (6)

Laurence D. Rhines, MD^F
Honoraria – Biomet (2); Medtronic (2)

Daniele Rigamonti, MD^F
Honoraria – Braun Aesculap

Howard A. Riina, MD^{P,F}
Other – New York Presbyterian Hospital Research Grant (6); *Ownership Interest* – eVisio Medical Systems (6); Neurovasx (6)

Andrew J. Ringer, MD^F
Consulting Agreement – eV3 (6)

David W. Roberts, MD^F
Consulting Agreement – Medtronic, Inc. (2) *Other* – Zeiss (6); Carl Zeiss Meditec, Inc.; Dusa Pharmaceuticals; (6) Medtronic, Inc. (6); NeuroPace, Inc.

Gerald E. Rodts, MD^P
Consulting Agreement – Globus Medical, Inc. (2); Medtronic (2); Orthofix, Inc. (2) SpineUniverse.com (3); *Royalty* – Globus Medical, Inc. (2)

Eric P. Roger, MD BSc FRCS(C)^P
Consulting Agreement – Medtronic (2); Stryker (2)

Charles L. Rosen, MD PhD^P
Other – National Institutes of Health (6); Synthes (6); *Ownership Interest* – Medtronic (6); Merck (6); Optika Technologies (3); Pfizer (6)

Joshua M. Rosenow, MD FACS^{P,F}
Consulting Agreement – Boston Scientific Neuromodulation (2); Medtronic Navigation (2)

Oren Sagher, MD BA^{P,F}
Other – Medtronic (6)

John H. Sampson, MD PhD MHSc^P
Consulting Agreement – BrainLAB (6); Celldex (6); *Intellectual Fees* – Celldex (6)

Faheem A. Sandhu, MD^F
Royalty – Custom Spine (2); K2M (2)

Charles A. Sansur, MD MHSc^{P,F}
Consulting Agreement – Synthes (2)

Rick Sasso, MD^F
Other – Cerapdics (6); *Royalty* – Medtronic (6)

Meic H. Schmidt, MD^F
Consulting Agreement – Aesculap (2)

Henry W.S. Schroeder, MD PhD^F
Consulting Agreement – Karl Storz GmbH & Co. KG (2)

Frank Schwab, MD^F
Consulting Agreement – DePuy Spine (2); *Honoraria* – Medtronic (6); *Other* – Medtronic (6); Nemaris (7); SRS (6); *Ownership Interest* – Nemaris (8)

Theodore H. Schwartz, MD FACS^F
Consulting Agreement – Integra (6); *Honoraria* – Visionsense (6)

Daniel M. Sciubba, BS MD^{P,F}
Honoraria – Medtronic (6)

Sarah Scorer, BSc MSc^F
Salary – Oxford Biomedica (5)

Nathan R. Selden, MD PhD FACS FAAP^{P,F}
Other – Bioscience Innovation Fund (6); Committee Chair – Society of Neurological Surgeons (4)

Christopher I. Shaffrey, MD FACS^F
Consulting Agreement – Biomet (6); *Honoraria* – DePuy (6); Stryker (6); *Other* – AOSPINE North America (6); Department of Defense (6); National Institutes of Health; *Royalty* – Medtronic (6)

Mitesh Vipin Shah, MD^P
Consulting Agreement – Arthrocare (2); Lanx (2)

Ashwini Dayal Sharan, MD^{P,F}
Consulting Agreement – Covidian (6); ICVRX (6); Medtronic (6); Non Linear (6); *Consulting Agreement* – St. Jude (6); *Honoraria* – Integra (6); *Honoraria* – IntElect (6); *Honoraria* – Medtronic (6); *Honoraria* – St. Jude (6); *Other* – St. Jude (6); Zimmer Spine (6)

Jonathan D. Sherman, MD^P
Consulting Agreement – Depuy (2); Medtronic (2)

Lori Anne Shutter, MD^F
Honoraria – Codman / J&J (2)

DISCLOSURE INFORMATION

Adnan Hussain Siddiqui, MD PhD^{P,F}

Consulting Agreement – Codman & Shurtleff, Inc. (2); Concentric Medical (2); ev3/Covidien Vascular Therapies (2); Guidepoint Global Consulting (2); Micrus Endovascular (2); Penumbra (2); *Grants* – National Institute of Health; *Honoraria* – American Association of Neurological Surgeons (6); Codman (6); Codman Speaker's Bureau (6); Emergency Medicine Conference (6); Genetech (6); Genetech Speaker's Bureau (6); Neocure Group, LLC (6); *Other* – Abbott Vascular (6); Codman Advisory Board (6); National Institutes of Health (6); University at Buffalo (6); *Ownership Interest* – Hotspur (6); Intratech Medical (6); Stimsox (6); Valor Medical (6)

Konstantin V. Slavin, MD^{P,F}

Consulting Agreement – Greatbatch (2); Medtronic (2); St. Jude Medical (2); Vycor Medical (2); *Honoraria* – Medtronic (2); St. Jude Medical (2); *Other* – Boston Scientific (6); Integra (6)

Andrew E. Sloan, MD^{P,F}

Consulting Agreement – Monteris Medical (2); RealBio (2); Surgical Theatre (2); *Grants* – National Cancer Institute (6); *Other* – Genentech (6); Roche Pharmaceuticals, Inc (6); *Ownership Interest* – Rubicon Genomics (6)

Jonathan R. Slotkin, MD^F

Consulting Agreement – InVivo Therapeutics (2); Stryker Spine (2)

Justin S. Smith, MD PhD^{P,F}

Consulting Agreement – Axial Biotech (2); Biomet (2); Medtronic Sofamor Danek (2); *Other* – DePuy Spine (6); Medtronic Sofamor Danek (6)

Mark M. Souweidane, MD^F

Consulting Agreement – Aesculap, Inc.

Robert F. Spetzler, MD^F

Consulting Agreement – Zeiss (6)

Michael P. Steinmetz, MD^{P,F}

Honoraria – Biomet Spine (2)

International Spine Study Group^F

Other – DePuy Spine (6)

Garnette R. Sutherland, MD FRCSC^F

Consulting Agreement – IMRIS Inc. (8)

Charles Teo, MD^F

Consulting Agreement – Aesculap

Nicholas Theodore, MD FACS^{P,F}

Consulting Agreement – Biomet (2); Stryker Spine (2); Synthes Spine (2); *Royalty* – Stryker Spine (6); Synthes Spine (6)

Shelly D. Timmons, MD PhD^{P,F}

Honoraria – Solvay Pharmaceuticals (2); Synthes (6)

Roland A. Torres, BA MD^{P,F}

Consulting Agreement – Integra Neuroscience (2); *Other* – National Institutes of Health/NINDS (6)

Vincent C. Traynelis, MD^F

Consulting Agreement – Medtronic (2); United HealthCare (2); *Royalty* – Medtronic (6)

Trent Lane Tredway, MD^F

Honoraria – Medtronic (6); Synthes (6)

Eve C. Tsai, MD PhD FRCSC^{P,F}

Other – Brainlab (6)

Erol Veznedaroglu, MD^{P,F}

Consulting Agreement – Codman (2); Cordis (2); Microvention (2); Micrus (2)

Marjorie C. Wang, MD MPH^{P,F}

Salary – Robert Wood Johnson Physician Faculty Scholars Program (6)

Michael Y. Wang, MD^{P,F}

Consulting Agreement – Aesculap Spine (2); Biomet (2); Depuy Spine (2); *Ownership Interest* – NeuroConsulting Specialists, LLC (8); NeuroConsulting, LLC (8)

Clarence B. Watridge, MD^F

Other – Medical Education & Research Institute (7); Medtronic (6); National Institutes of Health; NINDS (6); Spinal Motion (6)

Jeffrey S. Weinberg, MD^F

Honoraria – Brainlab (6)

William Charles Welch, MD, FACS, FICS^F

Consulting Agreement – Best Doctors (2); Synthes Spine (2); Zimmer Spine (2); *Ownership Interest* – Pittsburgh Standard Spine (7); Welch Research and Development (8)

Timothy F. Witham, MD BS^F

Honoraria – Globus Medical (6); Stryker Spine (6); *Other* – Integra Life Science (6)

Henry H. Woo, MD^{P,F}

Consulting Agreement – Codman and Shurtleff (2); ev3 Neurovascular (2); *Other* – Siemens (6); *Ownership Interest* – Vascular Simulations LLC (3); *Royalty* – Codman and Shurtleff (2)

Eric J. Woodard, MD^F

Honoraria – Depuy Spine (2); *Ownership Interest* – In Vivo Therapeutics (7); *Royalty* – Stryker Spine (2)

Lynda Jun-San Yang, MD PhD^{P,F}

Other – Sparton Corp. (3)

Burt Yaszay, MD^F

Consulting Agreement – K2M, Ellipse (2)

Burt Yaszay, MD^F

Consulting Agreement – Synthes (2); *Honoraria* – DePuy Spine (2)

Sangwook Yoon, MD^F

Other – AOSNA (6); Biomet (6); OMEGA (6); OREF (6); Phygen (6); *Royalty* – Nexgen (6); Stryker (6)

A. Samy K. Youssef, MD PhD^P

Honoraria – Synthes (6)

John S. Yu, MD^F

Board Trustee or Officer Position – Immunocellular Therapeutics, Ltd.

Jack E. Zigler, MD^F

Consulting Agreement – Synthes Spine (6); *Other* – Expanding Orthopaedics (6); FlexuSpine (6); Medtronic, DePuy, AO Spine (6); Spineart (6); Stryker Spine (6); *Royalty* – K2M (6); Osprey (6); Zimmer Spine (6)

DISCLOSURE INFORMATION

The following individuals have disclosed that they do not have a relationship with commercial companies whose products may have a relevance to their participation in the Annual Meeting. Planners are designated by ^P and Faculty by ^F.

Bizhan Aarabi, MD ^F	Rocco Armonda, MD ^F	Eric Belanger, MD ^F	Ketan R. Bulsara, MD ^F	Chih-yuan Chiang, MD ^F
Mariam Abbas, MD ^F	Wendy Armstrong, MD ^F	Randy Scott Bell, MD ^F	Christine Bulteau, MD ^F	Michael R. Chicoine, MD ^F
Khalid M. Abbed, MD ^F	Miguel A. Arraez Sanchez, MD ^F	Allan J. Belzberg, BSc, MD, FRCS(C) ^F	Kim J. Burchiel, MD ^F	E. Antonio Chioocca, MD ^{P,F}
Muhamad Abd-El-Barr, MD, PhD ^F	Robert Thomas Arrigo, BS ^F	Alim-Louis Benabid, MD, PhD ^F	Peter C. Burger, MD ^F	Ameet V. Chitale, BA ^F
Ku Abhay, MD ^F	Wael Asaad, MD, PhD ^F	Matthew Bender, BA ^F	Jan-Karl Burkhardt, MD ^F	Prashant Chittiboina, MD, MPH ^F
John M. Abrahams, MD ^F	Kaveh Asadi-Moghaddam, MD, PhD ^F	Bernard R. Bendok, MD ^{P,F}	Terry Burns, MD, PhD ^F	Woojin Cho, MD, PhD ^F
Tarek Abuelem, MD ^F	William W. Ashley, MD, PhD, MBA ^F	Tammie Benzinger, MD, PhD ^F	Anthony Michael Burrows, MD ^F	Yong-Jun Cho, MD, PhD ^F
M. Victoria Acedo, MD ^F	Rachid Assina, MD ^F	David C. Berg ^P	Charles V. Burton, MD ^F	Jong Wook Choi, MD ^F
Gareth John Adams, MD, PhD ^F	Ashok Rajappa Asthagiri, MD ^{P,F}	Mitchel S. Berger, MD ^F	William Butler, MD ^F	Michael Chopp, PhD ^F
David M. Adelman, MD, PhD ^F	Farah Atassi, MD ^F	Jonathan Berliner, BA ^F	John A. Butman, MD, PhD ^F	Tanvir Choudhri, MD ^F
Owoicho Adogwa, BS, MPH ^F	Mark Attiah, BS ^F	Jonathan Berry ^F	Nicholas Butowski, MD ^F	Armen Choulakian, MD ^F
Ralph Adolphs, PhD ^F	Francois Audren, MD, PhD ^F	Helmut Bertalanffy, MD ^F	Lisa H. Butterfield, PhD ^F	Abhineet Chowdhary, MD ^F
Satish Agadi, MD ^F	Issam A. Awad, MD, MSc, FACS, MA ^{P,F}	Chetan Bettegowda, MD ^F	Janice Bynum, CRNFA ^F	Winward Choy, MD ^F
Pankaj Kumar Agarwalla, AB, MSt ^F	Say Ayala-Soriano, MD ^F	Sandra Beverly, BA ^F	Richard W. Byrne, MD ^P	Sean Christie, MD ^P
Deepak Aggrawal, MBBS, MS ^F	Javad Azadi, BS ^F	Neal Bhutiani, BS ^F	David W. Cadotte, MD, PhD ^F	Ray M. Chu, MD ^F
Manish Kumar Aghi, MD, PhD ^F	Harish Babu, MD, PhD ^F	Stephan Bickel, MD, PhD ^F	Daniel P. Cahill, MD ^{P,F}	Ephraim Church, BA ^F
Azam S. Ahmed, MD ^F	Maya A. Babu, MD, MBA ^F	Frank S. Bishop, MD ^P	Paul J. Camarata, MD ^F	Joseph D. Ciacci, MD ^F
Osama Ahmed, MD ^{P,F}	Emilia Bagiella, PhD ^F	Sharon Bishop, RN ^F	Peter Campbell, MD ^F	Christopher Paul Cifarelli, MD, PhD ^F
Michele Renee Aizenberg, MD ^P	Merih I. Baharoglu, MD ^F	Erica Fay Bisson, MD ^F	Jose Campos, MD ^F	CLARITY Investigators ^F
Rajesh Alagolu, MD ^F	Nishanta B. Baidya, MD ^F	Jaishri Blakeley, MD ^F	Xudong Cao, PhD ^F	Megan Clark, MS ^F
Armando Alaminos, MD ^F	Lissa Catherine Baird, MD ^F	Jocelyn Blanchard, MD ^F	Ana W. Capuano, MD ^F	Jennifer L. Clarke, MD ^F
Felipe Albuquerque, MD ^F	Tracy L. Bale, PhD ^F	Lewis Blevins, MD ^F	Anthony J. Caputy, MD ^F	Michelle J. Clarke, MD ^F
Kenneth D. Aldape, MD ^F	Usha Balmuri, MD ^F	Orin Bloch, MD ^F	W. Shawn Carbonell, MD, PhD ^F	Christophe Cognard, MD ^F
Fanny Aldinger, MD ^F	Gordon H. Baltuch, MD ^{P,F}	Benjamin Blondel, MD ^F	Christine Carico, MD ^F	Alan R. Cohen, MD ^{P,F}
J. Wayne Aldridge, PhD ^F	Paloma Balugo, MD ^F	Nathaniel Bloodworth, BS ^F	Chad Carlson, MD ^F	Aaron Afshin Cohen-Gadol, MD ^F
Marcus Alexander, PhD ^F	Robert J. Banco, MD ^F	Gary M. Bloomgarden, MD ^P	S. Thomas Carmichael, MD, PhD ^F	Ahmet Colak, MD ^F
Melvin Alexander, MD ^F	Anirban Deep Banerjee, MD, MCh ^F	Maxwell Boakye, MD ^F	Amanda M. Carpenter, MD ^F	Gerardo Conesa, MD ^F
Khawar Ali, MD ^F	Guiseppa Barbagallo, MD ^F	Joel C. Boaz, MD ^F	Benjamin S. Carson, MD ^F	E. Sander Connolly, MD ^{P,F}
Muhammad Ali, MD ^F	Jason Barber, MS ^F	Robert Bohinski, MD ^F	Bob S. Carter, MD, PhD ^F	Humberto Contreras-Trujillo, BS ^F
Ryan David Alkins, BS, MD ^F	Juan A. Barcia, MD, PhD ^F	Leif-Erik Bohman, MD ^F	Jamal Carter, BS ^F	Calvin Michael Cooper, MD ^F
Cargill H. Alleyne, MD ^F	Juan Barges Coll, MD, MSc ^F	Ciaran Bolger, MD ^F	Valerie Carter, BA ^F	Shelly Cooper, MD ^F
Sarah B. Alme, BS ^F	Ausaf Bari, MD, PhD ^F	Warren W. Boling, MD, FRCS(C) ^F	Cecilia Casali, MD ^F	Jeroen R. Coppens, MD ^P
Ossama Al-Mefty, MD ^F	Frederick George Barker, MD ^F	Robert John Bollo, MD ^F	Alfredo Casasco, MD ^F	James Corines, MD ^F
Pedro Alonso-Lera, MD ^F	Garni Barkhoudarian, MD ^P	Aaron E. Bond, PhD ^F	Steven Casha, MD, PhD ^F	Rees Cosgrove, MD, FRCS ^{C,F}
Mohammed Alsaïdi, MD ^F	Daniel L. Barrow, MD ^F	John A. Boockvar, MD ^{P,F}	Frederic Castinetti, MD ^F	William T. Couldwell, MD ^F
Manuel Alvarado, MD ^F	Viktor Bartanusz, MD ^F	Frederick A. Boop, MD ^F	David A. Cavanaugh, MD ^F	Jean-Valery Coumans, MD ^F
Divya Ambati, BS ^F	Ronald H.M.A. Bartels, MD, PhD ^F	Luis Alencar Biurrum Borba, MD ^P	C. Michael Cawley, MD, FACS ^F	Etevaldo Coutinho, MD ^F
Chiazo Amene, MD ^F	Noufal Basheer, MBBS ^F	Carin Bouchard, PharmD ^F	Mishti Chakraborty, BS ^F	Matthew C. Cowperthwaite, PhD ^F
Peter Sebastian Amenta, MD ^F	David Baskins, MD ^F	Nicholas M. Boulis, MD ^F	P. S. Chandra, MCh ^F	Joseph Bridger Cox, MD ^F
Devin V. Amin, MD, PhD ^F	S. Basu, MD ^F	Oliver Bozinov, MD ^F	Edward F. Chang, MD ^F	Matthew Coyle, BSc ^F
Mario Ammirati, MD ^F	Brian Bateman, MD ^F	Henry Brem, MD ^F	Eric C. Chang, MD ^F	Jeffrey W. Cozzens, MD ^F
Vijay K. Anand, MD, FACS ^F	Christopher Batic, PhD ^F	Lacey E. Bresnahan, PhD ^F	Jason Jer Jia Chang, MD ^F	Barbara Crain, MD ^F
Richard C. E. Anderson, MD ^{P,F}	H. Hunt Batjer, MD ^F	Juan Raúl Brin, MD ^F	Steven D. Chang, MD ^F	Courtney Crane, PhD ^F
Valerie C. Anderson, PhD ^{P,F}	Margaret Batjer ^F	Ruth E. Bristol, BA, MD ^F	Emmanuel Chatzidakis, MD ^F	Fabian Cremaschi, MD ^F
William S. Anderson, MD ^P	Sachin Batra, MD, MPH ^F	Gavin W. Britz, MD ^F	Chun Siang Chen, MD ^P	Katharine M. Cronk, MD, PhD ^F
David W. Andrews, MD ^F	Kara D. Beasley, DO, MBE ^F	Douglas L. Brockmeyer, MD ^F	Clark C. Chen, MD, PhD ^F	DeWitte T. Cross, MD ^F
Peter D. Angevine, MD ^F	Heidi Beckstrom, RN ^F	Darrel S. Brodke, MD ^F	Michael Chen, MD ^F	R. Webster Crowley, MD ^{P,F}
Praveen Ankathi, MCh ^F	Laurie L. Behncke ^P	Giovanni Broggi, MD ^F	Peng Roc Chen, MD ^F	Juan P. Cruz, MD ^F
René Anxionnat, MD ^F	Bartolome Bejarano Herruzo, MD ^F	Nathaniel P. Brooks, MD ^F	Tom Chen, MD ^F	Hugo Cuellar, MD ^F
Masaru Aoyagi, MD, PhD ^F		Samuel Robert Browd, MD, PhD ^P	Cheng-Hsin Cheng, PhD ^F	Collin Culbertson, MD ^F
Geoffrey Appelboom, MD ^F		Jeffrey A. Brown, MD ^F	Joseph S. Cheng, MD, MS ^{P,F}	Paul Cullis, MD ^F
Derick M. Aranda, MD ^F		Jeffrey N. Bruce, MD ^F	Michelle Cheng, BS, PhD ^F	Dennis J. Cunningham, MD ^F
John Paul Argenti, BS, MS ^F		Samuel S. Bruce, BA ^F	Samuel H. Cheshier, MD ^F	
Eric J. Arias, MD ^F		Thierry Brue, MD, PhD ^F	Randall Matthew Chesnut, MD ^F	
		John M. Buatti, MD ^F	Yueh-Yun Chi, PhD ^F	
		Niels Buchmann, MD ^F		

DISCLOSURE INFORMATION

- Miles Cunningham, MD, PhD^F
 Guillaume Curaudeau, BBA^F
 William T. Curry, MD^{P,F}
 George R. Cybulski, MD^F
 Marek Czosnyka, MD^F
 Zofia Czosnyka, MD^F
 Leodante B. da Costa, MD^F
 Marcel M. Daadi, PhD^F
 Richard Dalyai, MD^F
 Anthony D'Ambrosio, MD^P
 David J. Daniels, MD, PhD^F
 Guy O. Danielson, MD^F
 Shabbar F. Danish, MD^F
 Stephen J. Dante, MD^F
 Aneela Darbar, MD^P
 Hormuzdiyar H. Dasenbrock, BA^F
 Isao Date, MD^F
 Gareth M. Davies, MD^F
 Dawn M. Davis^P
 Arthur L. Day, MD^F
 John Diaz Day, MD^F
 Hayan Dayoub, MD^F
 Michael De Lay, MD^F
 Philip C. De Witt Hamer, MD, PhD^F
 Bruce Dean, MD^F
 John Matthew Debnam, MD^F
 Karlheinz Decker, MD^F
 Matthew Decker, MD^F
 Aman Deep, MD^F
 Archie Defillo, MD^F
 Helton Defino, MD^F
 Frank Deford^F
 Amir R. Dehdashti, MD^F
 Karl Deisseroth, MD, PhD^F
 Olivier Delalande, MD^F
 Jason Demakakos, MD^F
 Charles deMestral, MD^F
 Robert J. Dempsey, MD^F
 Milind S. Deogaonkar, MBBS, MD^F
 Colin Derdeyn, MD^F
 Ketan Ishwarlal Desai, MD^F
 Antonio DeSalles, MD, PhD^F
 Eric M. Deshaies, MD^F
 Jay deVenny, MBA^F
 Clinton J. Devin, MD^F
 Orrin Devinsky, MD^F
 Vedat Deviren, MD^F
 Michael C. Dewan, BS^F
 Sanjay S. Dhall, MD^{P,F}
 Krishnan M. Dhandapani, PhD^F
 Silviu Diaconu, MD^F
 Roberto Jose Diaz, MD, BSc^F
 Marc A. Dichter, MD, PhD^F
 Sebastien Didier, MD^F
 Murat Digicaylioglu, MD, PhD^F
 Surreya Dikmen, PhD^F
 Francesco DiMeco, MD^F
 Dale Ding, MD^{P,F}
 Brian J. Dlouhy, MD^F
- Anton E. Dmitriev, MSc^F
 Huy M. Do, MD^F
 Alen Docef, MD^F
 Daniel Do-dai, MD^F
 Robert L. Dodd, MD^F
 Paul Edward Dodds, PhD^F
 Christopher Doede, PharmD^F
 Parviz Dolati-Ardejani, MD^F
 Patrice Dolphin, MD^F
 David J. Donahue, MD^F
 Georg Dorfmueller, MD^F
 Ian G. Dorward, MD^F
 Jose Augusto Nasser Dos Santos, MD, PhD^F
 Darin D. Dougherty, MD, MSc^F
 Daniel Downes, BS^F
 Werner Doyle, MD^F
 James M. Drake, MD^F
 Glenn Dranoff, MD^F
 Jan Drappatz, MD^F
 Xavier Drouot, MD^F
 Jason Druzgal, MD^F
 Edward A. Duckworth, MD^F
 Hugues Duffau, MD, PhD^F
 Henry Dufour, PhD^F
 Aaron S. Dumont, MD^{P,F}
 Travis Michael Dumont, MD^F
 Gavin Peter Dunn, MD, PhD^F
 Ian F. Dunn, MD^P
 Kreso Sasa Duric, MD^F
 Marcel Dvorak, MD^F
 Robert Doniger Ecker, MD^F
 John Edwards, MD^F
 Lindsay Edwards, MD^F
 Michael S. B. Edwards, MD, FACP, FACS^F
 Khaled Effendi, MD^F
 Kurt M. Eichholz, MD^{P,F}
 Mostafa El Dafrawy, MD^F
 Samer K. Elbabaa, MD^P
 James B. Elder, MD^F
 Kost Elisevich, MD^F
 Richard G. Ellenbogen, MD, FACS^{P,F}
 Jorge Luis Eller, MD^P
 Cameron Elliott, BS, MD^F
 Robert E. Elliott, MD^F
 Johnathan A. Engh, MD^F
 Dario J. Englot, MD, PhD^F
 Laszlo Entz, MD^F
 Nancy E. Epstein, MD^F
 Kadir Erkmen, MD^F
 Debbie Esernio-Jenssen, MD^F
 Emad N. Eskandar, MD^{P,F}
 Daniel K. Fahim, MD^F
 Jacob M. Fairhall, MB, BS, BSc(med)^F
 Julie Falardeau, MD^P
 Asdrubal Falavigna, PhD^F
 Michael Falola^F
 Xuemo Fan, MD^F
 Elana Farace, PhD^F
- Kyle Michael Fargen, MD, MPH^F
 Christopher J. Farrell, MD^F
 Ryan Faught, BS^F
 Thais Federici, PhD^F
 Guenther C. Feigl, MD^F
 Brunhilde Felding-Habermann, MD, PhD^F
 Eva Feldman, PhD^F
 Lisa Anne Feldman, MD^F
 Neil Feldstein, MD^F
 Jason Andrew Felton, MD^P
 Gilles Fenelon, MD^F
 Christina Fernandez, MS^F
 Juan Carlos Fernandez-Miranda, MD^F
 Sarah Ferrand-Sorbets, MD^F
 Andrew S. Ferrell, MD^F
 Richard D. Fessler, MD^F
 Mike Fetzter, BS, ISE^F
 Jorn Fierstra, MD^F
 Ramon Figuaroa, MD^F
 Charles Fisher, MD^F
 Paul Fisher, MD^F
 Winfield S. Fisher, MD^F
 Neil Fleming, MD^F
 Lauren Fletcher, MS^F
 John Flickinger, MD^F
 Graham Flint, MD^F
 Martine Fohlen, MD^F
 Jonathan Forbes, MD^F
 Mina Foroohar, MD^F
 Beth Forrow, MD^F
 Daryl R. Fourney, MD^{P,F}
 Douglas John Fox, MD^F
 W. Christopher Fox, MD^P
 Moschos Fratzoglou, MD^F
 Chantelle Freeman, BS^F
 Courtenay Freeman, MD^F
 Chris Freudiger, PhD^F
 Jared Fridley, MD^F
 Robert M. Friedlander, MD^F
 Allan H. Friedman, MD^F
 David Elliot Friedman, MD^F
 William A. Friedman, MD^F
 Robert Frysinger, PhD^F
 Kai-Ming G. Fu, MD, PhD^F
 Kentaro Fujii, MD^F
 Yelena S. Fuks, BS^F
 Tomoko Fukushima, MD^F
 Daniel H. Fulkerson, MD^F
 Gregory N. Fuller, MD, PhD^P
 Patrik Gabikian, MD^P
 Innana Gabriel, MD^F
 Neville D. Gai, PhD^F
 Mario Ganau, MD, MSBM^F
 Chirag D. Gandhi, MD^F
 Aruna Ganju, MD^F
 Paul A. Gardner, MD^F
 Hugh Garton, MD^P
 Tomas Garzon-Muvdi, MD, MS^F
 Jaime Gasco-Tamarit, MD^P
 Sarah J. Gaskill, MD^P
 Rachel Gaume, BS^F
 Paola Gaviani, MD^F
- Eric Geller, MD^F
 Jens Gempt, MD^F
 Timothy George, MD^P
 Peter C. Gerszten, MD, MPH, FACS^F
 Christopher C. Getch, MD^{P,F}
 Jamshir Ghajar, MD, PhD, FACS^F
 George M. Ghobrial, MD^F
 Pranav Ghodgaonkar, MS, MCh^F
 Basavaraj Ghodke, MD^F
 Zoher Ghogawala, MD^{P,F}
 Santiago Gil Robles, MD^F
 Steven Gill, FRCS, MS^F
 Holly Gilmer, MD^{P,F}
 Santiago Gil-Robles, MD^F
 George Gitchele, MD^F
 Joseph Gjolaj, MD^F
 Jonathan Glass, MD^F
 Roberta P. Glick, MD^F
 Wayne Gluf, MD^F
 Marc Alan Goldman, MD^F
 Kiarash Golshani, MD^F
 David Gomez, MD^F
 David D. Gonda, MD^F
 L. Fernando Gonzalez, MD^{P,F}
 Nestor R. Gonzalez, MD^F
 Mercedes González-Hidalgo, MD^F
 Francisco Gonzalez-Llanos, MD^F
 Roger Goodell^F
 James T. Goodrich, MD^F
 Quinton Gopen, MD^F
 Charles R. Gordon, MD^F
 David S. Gordon, MD^F
 Vickie Gordon, NP-C, PhD^F
 Ramana Gorrepati, MD^F
 Inbal Goshen, PhD^F
 Jim Gossage, MD^F
 Katsuya Goto, MD^F
 Sita Gourishankar, BS, MSc, MD^F
 R. Scott Graham, MD^F
 Thomas Graillon, MD^F
 Regis Gras, MD^F
 Barth A. Green, MD^F
 Jeremy D.W. Greenlee, MD^F
 Christoph Johannes Griessenauer, MD^F
 Matthew Grosso, BS^F
 Morris Groves, MD^F
 Robert L. Grubb, MD^F
 Daniel James Guillaume, MD^P
 Leopoldo Guimaraens, MD^F
 Deepak Kumar Gupta, MD^F
 Gaurav Gupta, MD^F
 Jean Marc Gurruchaga, MD^F
 Demirkan B. Gursel, PhD^F
 Bharat Guthikonda, MD^F
 Jorge A. Gutierrez, MD^F
 David Gwinn, MD^F
 Barbara Haas, MD^F
- Uri Hadelsburg, MD^F
 Mark N. Hadley, MD^F
 Aptullah Haholu, MD^F
 Daniel K. Hallam, MD, MSc^F
 Casey H. Halpern, MD^F
 D. Kojo Hamilton, MD^{P,F}
 Seunggu J. Han, MD^F
 Michael H. Handler, MD^{P,F}
 Daniel Hanggi, MD^P
 Todd C. Hankinson, MD^P
 Philippe Hantraye, PhD^F
 Raqeeb M. Haque, MD^P
 Robert E. Harbaugh, MD^F
 Ciara D. Harraher, MD, BSc^F
 Brent T. Harris, MD, PhD, FCAP^F
 Odette Harris, MD^{P,F}
 David A. Harrison, MD^F
 Madaline Harrison, MD^F
 Griff Harsh, MD^F
 David M. Hasan, MD^F
 Hamid Hassanzadeh, MD^F
 Sharon Hayden, BS^F
 Melanie G. Hayden Gephart, MD, MAS^F
 Ricky J.L. Haywood-Watson, MD, PhD^F
 Michele D. Heaphy^P
 Nicole J. Heilman^P
 John D. Heiss, MD^F
 Christopher A. Heller, MD^F
 Robert Heller, MD^F
 Stephanie L. Henry, MD^F
 Dong-Hwa Heo, MD^F
 Angel Hernandez, MD^F
 Jason Heth, MD^F
 Jason David Hill, MD^F
 Sandra J. Hill-Felberg, PhD^F
 Justin Hilliard, BS^F
 William L. Hills, MD, OD^P
 Jose Hinojosa, MD^F
 Mikio Hiura, MD^F
 Sven Markus Hochheimer, MD^F
 Christoph Hofstetter, MD, PhD^F
 Brian Lim Hoh, MD^{P,F}
 Daniel J. Hoh, MD^P
 Eric C. Holland, MD, PhD^F
 Sun Ki Hong^F
 Kristopher Gray Hooten, MD^{P,F}
 Jason Marshall Hoover, MD^F
 Michael Horgan, MD^F
 Terry H. Horner, MD^F
 Koji Hosaka, PhD^F
 Chihiro Hosoda, MD^F
 David Houlden, PhD^F
 Chul Hu^F
 Yu-Long Hu, PhD^F
 Judy Huang, MD^F
 Ferdinand Hui, MD^F
 John R. Humm, MD^F
 Anahi Hurtado, PhD^F
 Diane Huse, MS, PT^F
 Brian Y. Hwang, MD^F

DISCLOSURE INFORMATION

Gyojun Hwang, MD^F
Roy Hwang, MD^F
Jonathan A. Hyam, MRCS,
BSc^F
Lee Hyer, PhD^F
Christopher A. Iannotti,
MD, PhD^F
Tomotsugu Ichikawa, MD,
PhD^F
Janice L. Ilg^P
Gerald Imber, MD^F
Motoki Inaji, MD^F
Satoshi Inoue, MD^F
Gisele E. Ishak, MD^F
Kenji Ishii, MD^F
Yosuke Ishii, MD^F
Kiichi Ishiwata, PhD^F
Hiro Iwamura, MD^F
Rajiv Iyer, MD^F
Walter P. Jacobsen, DO^F
Line Jacques, MD^F
Kourosh Jafari, PhD^F
Jurg L. Jaggi, PhD^F
Arman Jahangiri, BS^F
Shady Jahshan, MD^F
Amit Jain, BS^F
H. Jain, MD^F
Sanjay Jain, MD^F
Regina Jakacki, MD^F
George I. Jallo, MD,
FACS^{P,F}
Jack Jallo, MD, PhD,
FACS^F
Carol James, BS^F
John Anthony Jane, BA,
MD^F
John A. Jane, MD, PhD,
FRCS(C)^F
Tariq Janjua, MD^F
Vijayakumar Javalkar,
MD^F
Andrew Jea, MD^F
Dhruve Satish Jeevan,
MD^F
Kenneth Jenrow, PhD^F
Randy L. Jensen, MD^F
Jianfei Ji, MD^F
Brian J. Jian, MD, PhD^F
Tao Jiang, MD^F
David F. Jimenez, MD,
FACS^F
Ajinkya Joglekar, MS^F
Michele M. Johnson, MD^F
Carole Joint, MD^F
Manuela Jorquera^F
Sarah C. Jost, MD^{P,F}
Hyen-Ho Jung, MD^F
Stephen P. Juraschek, BA^F
Michael J. Kahana, PhD^F
Jeffrey Kahane^F
Kanav Kahol, PhD^F
Michael G. Kaiser, MD^F
Udaya K. Kakarla, MD^F
M. Yashar S. Kalani, BS,
MS, MD, PhD^F
Samuel Kalb, MD^F
Shashank Sharad Kale,
MBBS, MS, MCh, MD^F
Steven N. Kalkanis, MD^{P,F}
Milota Kaluzova, MD^F
Peter Kan, MD, MPH,
FRCS^F
Daniel Gene Kang, MD^F
Suk-Hyung Kang, MD^F
Hideyuki Kano, MD, PhD^F
Alberto D. Kaplan, MD^F
Laura Kaplan, MD^F
Sasan Karimi, MD^F
Dimitri Karles, MD^F
Aurelie Kas, MD^F
Aimen S. Kasasbeh, MD^F
Manish K. Kasliwal, MD,
MCh^F
Anthony M. Kaufmann,
MD, BSc (Med), MSc^F
Balveen Kaur, MD^F
Gurvinder Kaur, BS^F
Rajwant Kaur, MD^F
Nobuyuki Kawai, MD^F
Serdar Kaya, MD^F
Jeffrey G. Keating, MD^F
Robert F. Keating, MD^F
Khaled Kebaish, MD^F
Corey J. Keller, MS^F
Ryan Thomson Kellogg,
BS^F
Marc Kent, MD^F
Eubulus J. Kerr, MD^F
Graham Kerr, MD^F
Marie Kerr, CCRP^F
Vanessa B. Kerry, MD^F
Thomas Kerwin, MD^F
Sassan Keshavarzi, MD^F
Andrew Ketterer, BA^F
Fahd R. Khan, MD^F
Safdar Khan, MD^F
Paritosh C. Khanna, MD^F
Hun-Joo Kim^F
Louis J. Kim, MD^F
Won Kim, MD^F
Young-Don Kim, MD, PhD^F
Toshikazu Kimura, MD^F
Melanie King, MS^F
Ryan Seiji Kitagawa, MD^F
Jill Klausner^F
Paul Klimo, MD^F
Nicolas Koechlin, MD^F
Linda A. Koester, BS^F
Panagiotis Kokkalis, MD^F
Ricardo Jorge Komotar,
MD^{P,F}
Peter Konrad, MD, PhD^{P,F}
Stephen J. Korn, PhD^F
Walter J. Koroshetz, MD^F
Patricia Koskas, MD^F
Maria Koutourousiou,
MD^F
William E. Krauss, MD^F
Jürgen Kreutzer^F
Sandro M. Krieg, MD^F
Mark D. Krieger, MD^{P,F}
Boris Krischek, MD^F
Satish Krishnamurthy,
MD, MCh^F
Ajit A. Krishnaney, MD^{P,F}
Ali F. Krisht, MD^F
Alexander Ksendzovsky,
BS^F
Rustam Kudyakov, MPH,
MD^F
Abhaya Vivek Kulkarni,
MD^F
Girish V. Kulkarni, MRCS^F
Monisha Kumar, MD^F
Sandeep Kunwar, MD^F
John S. Kuo, MD, PhD^{F,P}
Kazuhiko Kurozumi, MD,
PhD^F
Shekar N. Kurpad, MD,
PhD^F
Maria Elena Kusak, MD^F
Deepa Kushwaha, MD^F
Murat Kutlay, MD^F
Theodoulos Kyriakou,
MD^F
Michael LaBagnara, MD^F
David LaBorde, MD^F
Jesus Lafuente, MD^F
Sara C. LaHue, BA^F
Eugene Lai, MD^F
Luke Lairson, MD^F
Sanju Lama, MBBS, MSc^F
Kathleen L. Lamborn,
PhD^F
Story C. Landis, PhD^F
Gregory B. Lanford, MD^F
Frederick F. Lang, MD^{P,F}
Douglas Laske, MD^F
Purushottam W. Laud,
PhD^F
Alex Lauric, MD^F
Sonia Lavissee, PhD^F
Matthew F. Lawson, MD^F
Alex G. Lee, MD^F
Hana A. Lee, MPH^F
John Y. Lee, MD^F
Joung H. Lee, MD^F
Myeong Sub Lee, MD^F
Peter Lee, MD^F
Christopher Lee-Messer,
MD^F
Richard Lefevre, MD^F
Lisa Leffert, MD^F
Bradley Lega, MD^F
Federico G. Legnani, MD^F
Ronald A. Lehman, MD^F
Emily Marie Lehmann,
MD^F
Thomas J. Leipzig, MD^F
Michele L. Lengerman,
MBA^P
Helene Lepetit, MD^F
Maciej S. Lesniak, MD^F
Mark L. Lessne, MD^F
Steve Levison, PhD^F
Michael Robert Levitt,
MD^F
Michael L. Levy, MD, PhD^F
Richard Levy, MD^F
Sean M. Lew, MD^F
Stephen Lewis, MSc, MD,
FRCS(C)^F
Luis Ley, MD^F
J Li, MD^F
Qiang Li, MD, PhD^F
Linda M. Liau, MD, PhD^F
Michael Lim, MD^F
Charles J. Limb, MD^F
David D. Limbrick, MD,
PhD^F
Chih-Ta Lin, MD^F
Breton G. Line, BSME^F
Michael J. Link, MD^F
Mark E. Linskey, MD^{P,F}
Douglas Linville, MD^F
Feifei Liu, MD^F
James K. Liu, MD^P
Kenneth C Liu, MD^{P,F}
Liang Liu, MD^F
Xiaomin Liu, MD, PhD^F
Darlene Angela Lobel,
MD^{P,F}
Dennis T. Lockney, BS^F
Baron Lonner, MD^F
Russell R. Lonser, MD^{P,F}
Johanna Loomba, MD^F
M. Beatriz Lopes, MD^F
Mihaela Lorgor, PhD^F
Steven Lossef, MD^F
Jie Lu, MD, PhD^F
David M. Lyons, MD^F
R Loch Macdonald, MD^F
Revaz Machaidze, MD^F
Christopher J. Madden,
MD^F
Karthik H. Madhavan, MD^F
Ricky Madhok, MD^P
Subu N. Magge, MD^F
Suresh N. Magge, MD^F
Kelly B. Mahaney, MD^P
Ashok Kumar Mahapatra,
MD^F
Asim Mahmood, MD^F
Dennis J. Maiman, MD^F
Ghaus M. Malik, MD^F
Ross Malik, MD^F
Saleem Malik, MD^F
Nicholas Maling, MD^F
Grant W. Mallory, MD^F
Eileen Maloney-Wilensky,
ARNP^F
Mitchell Gil Maltenfort,
PhD^F
Jay Mandrekar, PhD^F
Francesco T. Mangano,
DO^F
Allen H. Maniker, MD^{P,F}
Marc Christopher Manix,
MD^F
Nathan C. Manley^F
Miguel Manrique, MD^F
Naveen Maramreddy,
MD^F
Luis Marchi, MSc^F
Kim M. Marcuccilli^P
Lee Margolin, MD^F
Corrado Marini, MD^F
Nicholas Frank Marko,
MD^P
Michael P. Marks, MD^F
Tom R. Marotta, MD^F
Kristin L. Martin, BS^F
Nuria E. Martinez, MD^F
Roberto Martínez Álvarez,
MD^F
Jaime Jesus Martinez
Anda, MD^F
Nuria E. Martinez
Moreno, MD^F
Nikolay L. Martirosyan,
MD^F
Thomas J. Masaryk, MD^F
Eric M. Massicotte, MD^F
Parinaz Massoumzadeh,
PhD^F
Virgilio Matheus, MD^F
David Mathieu, MD,
FRCS(C)^F
Charles Matouk, MD^F
Yoshiharu Matsushima,
MD^F
Paul K. Maurer, MD^F
Rory R. Mayer, BS^F
Stephan A. Mayer, MD^F
Mia Mazer, BS^F
Catherine A. Mazzola,
MD^{P,F}
Heyoung McBride, MD^F
Stanley McChrystal^F
J. Gordon McComb, MD^F
Paul C. McCormick, MD^F
Ian E. McCutcheon, MD^F
Michael William
McDermott, MD^F
Cameron G. McDougall,
MD^F
Melissa McGettigan, MD^F
Matthew McGirt, MD^F
Mary H. McGrath, MD^F
James McInerney, MD^F
Amy McIntosh, MD^F
Guy M. McKhann, MD^{P,F}
Jon Meacham^F
Joshua E. Medow, MD^F
Ashesh Mehta, MD^F
Gautam U. Mehta, MD^{P,F}
Vivek Mehta, MD^F
Juan A. Mejia, MD^F
Hal S. Meltzer, BS, MD^F
Stephen Mendenhall, BS^F
David K. Menon, MD,
PhD, FRCP, MBBS^F
Robert A. Mericle, MD^{P,F}
Bernhard Meyer, MD^F
Fredric B. Meyer, MD^F
Matthew Kamal Mian,
BSE^F
Hiroyuki Michiue, MD^F
Rajiv Midha, MD^F
William R. Miele, MD^F
Tatyana Milavanova, MD,
PhD^F
Chad Miller, MD^F
Loren Miraglia, MD^F
Stuart Mirvis, MD^F
Basant Kumar Misra, MD,
MBBS, MS, MCh^F
William Mitchell, MD^F
Alim P. Mitha, MD, SM^F
Siddhartha S. Mitra, BSc,
MSc, MS, PhD^F
Mark Mittler, MD, FACS,
FAAP^F
Keisuke Miyake, MD,
PhD^F
Abhay Moghekar, MD^F
Mohammadali Mohajel
Shoja, MD^F
Kriti Mohan, MD^F

DISCLOSURE INFORMATION

- Yedathore Mohan, MD^F
 Aaron Mohanty, MD^F
 Asma Moheet, MD^F
 Michelle Monje-Deisseroth, MD^F
 Walter Montanera, MD^F
 Stephen J. Monteith, MD^{P,F}
 Karam Moon, MD^F
 Lucy Mooney, BS^F
 Brad Moore, MD^F
 Leon E. Moores, MD, FACS^F
 Osmar Moraes, MD^F
 Christopher J. Moran, MD^F
 Jacques J. Morcos, MD^F
 Akio Morita, MD, PhD^F
 John Morrison, MD, MS^F
 Martin M. Mortazavi, MD^F
 Ziev B. Moses, BSE^F
 Shaye I. Moskowitz, MD^F
 Thomas Mroz, MD^F
 Lynn Mubita, BS^F
 John Mugamba, MD^F
 Maki Mukawa, MD^F
 Debraj Mukherjee, MD, MPH^F
 Pratik Mukherjee, MD, PhD^F
 Gregory J. Murad, MD^F
 Raj Murali, MD^F
 Hollie Murphy, MD^F
 Timothy M. Murphy, MD^F
 Daniel B. Murrey, MD^F
 Nanette Myers, MBA^F
 John S. Myseros, MD^F
 Robert Partlow Naftel, MD^F
 Daniel Nagasawa, BA^F
 Sean J. Nagel, MD^F
 Brian V. Nahed, MD^F
 Peter Nakaji, MD^F
 Anil Nanda, MD, FACS^{P,F}
 Tadashi Nariai, MD, PhD^F
 Raghu N. Natarajan, PhD^F
 Avery B. Nathens, MD, MPH, PhD^F
 Narendra Nathoo, MD, PhD^F
 Ann B. Nattinger, MD, MPH^F
 Vanita Natu, MD^F
 Roman E. Navarro, MD^F
 Gabrielle Navon, BA^F
 Edjah K. Nduom, MD^F
 Dan Neal, MS^F
 Jayson Andreau Neil, MD^F
 Joseph Samir Neimat, MD, MS^F
 Edward Nemergut, MD^P
 David Nerenz, PhD^F
 Sing Chau Ng, PhD^F
 Christopher Nickelle^F
 Mika Risto Niemela, MD, PhD^P
 Daniel E. Nijensohn, MD, MSc, PhD, FACS^F
 Ajay Niranjana, MD, MBA^F
 Menarvia K. C. Nixon, MD^F
 Kamil Nowicki, BS^F
 Miriam Nuno, PhD^F
 Eric S. Nussbaum, MD^F
 Leslie A. Nussbaum, MD, PhD^F
 Michael F. O'Brien, MD^F
 Richard O'Brien, MD^F
 Kuniaki Ogasawara, MD^F
 Alfred T. Ogden, MD^F
 Christopher S. Ogilvy, MD^F
 Gerald Ogola, MS^F
 Michael Oh, MD^F
 Kikuo Ohno, MD^F
 Jeffrey G. Ojemann, MD^F
 Masaki Okada, MD^F
 Michael S. Okun, MD^F
 Greg Olavarria, MD^{P,F}
 Edward H. Oldfield, MD^F
 Shaun T. O'Leary, MD^P
 Leonardo Oliveira, BSc^F
 Bartolome Oliver, MD^F
 Monika Oliver, MD^F
 Antonio Oliviero, MD^F
 Jeffrey J. Olson, MD^F
 Brent R. O'Neill, MD^F
 Manabu Onishi, MD^F
 Chiagozie Ononiwu, BS^F
 Mark E. Oppenlander, MD^F
 David Orion, MD^F
 David Ryan Ormond, MD^F
 Daniel A. Orringer, MD^F
 Anthony Orth, MD^F
 Tomás Ortiz, MD^F
 Akiko Ota, MD^F
 Shinzo Ota, MD^F
 Taisei Ota, MD^F
 Gretchen Otto, BS^F
 Anthony Owusu, MD^F
 Nelson M. Oyesiku, MD, PhD, FACS^{P,F}
 Haines Paik, MD^F
 Theophilos S. Paleologos, MD^F
 David Palestrant, MD^F
 Alessandro Paluzzi, MD^F
 Aditya S. Pandey, MD^P
 Paritosh Pandey, MD^F
 Dachling Pang, MD^F
 Panagiotis G. Papanikolaou, MD^F
 Avelino Parajon, MD^F
 Dong Ha Park, MD^F
 John K. Park, MD, PhD^{P,F}
 Kyung-Jae Park, MD^F
 She-Hyuck Park, MD^F
 Scott L. Parker, BS^F
 Ian F. Parney, MD, PhD^F
 Phillip Parry, MD^F
 Andrew T. Parsa, MD, PhD^{P,F}
 Donald W. Parsons, MD, PhD^F
 Achal Patel, MD^F
 Shaun Patel, BA, MA^F
 David J. Paterson, PhD^F
 Chirag G. Patil, MD, MSE^F
 Samit A. Patrawala, BS^F
 Laura Paul, MD^F
 Keith Paulsen, PhD^F
 Troy D. Payner, MD^F
 Erlick A.C. Pereira, MA, BM, BCh^F
 Jordi Pérez Bovet, MD^F
 M. Perry, MD^F
 Mary Linton Peters, MS^F
 Scott Brian Phillips, MD^F
 Sharon Phillips, MD^F
 Surasak Phuphanich, MD^F
 Matthew Piazza, BA^F
 Mark P. Piedra, MD^F
 Joseph M. Piepmeyer, MD^F
 Larry Pierce, MD^F
 Julie G. Piliatsis, MD, PhD^{P,F}
 David W. Pincus, MD, PhD^F
 Dimitris G. Placantonakis, MD, PhD^F
 Puneet Plaha, FRCS, MS^F
 Simon Ronald Platt, BVM&S, MRCVS^F
 Nikolaus Plesnila, MD, PhD^F
 Scott Plotkin, MD, PhD^F
 Meraida Polack, RN^F
 Ian F. Pollack, MD^F
 Bruce E. Pollock, MD^F
 Kimberly Pollock, RN, MBA^F
 Candice Poon, BS^F
 Randall W. Porter, MD^F
 Tyler L. Poston, MD^F
 Matthew B. Potts, MD^F
 Nader Pouratian, MD, PhD^{P,F}
 Michael Powell, MD^F
 Suzanne Powell, MD^P
 Vikram C. Prabhu, MD, MS^F
 Gustavo Pradilla, MD^F
 Michael Prados, MD^F
 Maxine S. Prange^P
 Svetlana Pravdenkova, MD, PhD^F
 Charles J. Prestigiacomo, MD, FACS^P
 Daniel M. Prevedello, MD^{P,F}
 Ruth Prieto, MD^F
 Lara Prisco, MD^F
 Mark R. Proctor, MD^{P,F}
 Ross Puffer, BA^F
 Thomas Pulling, MD^F
 Aniruddha Kumar Purohit, MS, MCh^F
 Margot Putukian, MD^F
 Jhin Soo Pyen, MD^F
 Steven Quinn, MD^F
 Tanya M. Quinn, MD^P
 Alfredo Quinones-Hinojosa, MD^{P,F}
 Stacey Charlene Quintero Wolfe, MD^P
 Andreas Raabe, MD^F
 Craig H. Rabb, MD^P
 Corey Raffel, MD, PhD^F
 Brian T. Ragel, MD^{P,F}
 Maryam Rahman, MD, MS^F
 Jaskaran Rakkar, BS^F
 Anne Laure Ramelli, MD^F
 Kristofer Ramina, MD^F
 Raja Y. Rampersaud, MD, FRCS(C)^F
 David Ramsay, MD^F
 Moksha Ranasinghe, MD^F
 Ganesh Rao, MD^{P,F}
 Zhengxi Rao, MD^F
 Dan Raper, MBBS^F
 Peter A. Rasmussen, MD^F
 Shaan Mohammed Raza, MD^F
 Alexander Y. Razumovsky, PhD^F
 John F. Reavey-Cantwell, MD^F
 Rajesh Reddy, MBBS, FRACS^F
 Vishruth K. Reddy, BA^F
 Kathleen Redelman, RN^F
 Gavin T. Reed, MPH^F
 Marco T. Reis, MD^F
 Philippe Remy, MD^F
 Daniel K. Resnick, MD^{P,F}
 Rogelio Revuelta-Gutiérrez, MD^F
 Germán Rey Portolés, MD^F
 Albert L. Rhoton, MD^F
 Keith M. Rich, MD^F
 Chase Richard, MD^F
 Jaime E. Richardson, MD^F
 Kathleen Richter, MS^F
 Frédéric Ricolfi, MD^F
 Jonathan Riley, MD^F
 Daniel Rines, MD^F
 Florian Ringel, MD^F
 Andrew J. Ringer, MD^F
 Margaret Riordan, MD^F
 Rainer Ritz, MD, PhD^F
 Jay Riva-Cambrin, MD^F
 Syed A.A. Rizvi, MD^F
 Francisco Robaina, MD^F
 Colin Roberts, MD^{P,F}
 Joe S. Robinson, MD^F
 Shenandoah Robinson, MD^{P,F}
 Bruce Rod^P
 Jose María Roda, MD, PhD^F
 William C. Rodemer, BS^F
 Ben Z. Roitberg, MD^F
 Patricia Rojas-Castillo, MSc^F
 Andrew K. Romeo, MD^F
 Angelica Romero, MD^F
 Jennifer Ronecker, MD^F
 Samuel D. Rose, BS^F
 Charles D. Rosen, MD^F
 Robert H. Rosenwasser, MD, FACS, FAHA^F
 Ian B. Ross, MD^F
 Shani E. Ross, MS^F
 Richard A. Rovin, MD^F
 Kathy Rowan, MD^F
 David Rubin, MD^F
 Jeremy D. Rudnick, BS, MD^F
 Anand Indulal Rughani, MD^F
 Jose Rumia, MD^F
 Ueli Rutishauser, PhD^F
 James T. Rutka, MD, PhD, FRCS, FACS^F
 Martin J. Rutkowski, BA^F
 Jacob Ruzevick, BS^F
 Hooshang Saberi, MD, MPH^F
 Javier Saceda, MD^F
 Adam J. Sachs, MD^F
 Justin Sacks, MD^F
 Debashis Sahoo, PhD^F
 Barada Prasad Sahu, DNB^F
 Andrea Salmaggi, MD^F
 Tetsuro Sameshima, MD, PhD^F
 Mehul Sampat, PhD^F
 Duke S. Samson, MD^F
 Owen B. Samuels, MD^F
 Nader Sanai, MD^{P,F}
 Matthew Robert Sanborn, MD^F
 Justin Sanchez, PhD^F
 David I. Sandberg, MD^{P,F}
 Ana Sanz, MD^F
 Robert M. Sapolsky, MD^F
 Julie Sargent, MD^F
 Deanna Mary Sasaki-Adams, MD^P
 Michiyoshi Sato, MD^F
 Jennifer Gentry Savage, MD^F
 Luis E. Savastano, MD^F
 Raymond Sawayama, MD^F
 Alan M. Scarrow, MD^{P,F}
 Massimo Scerrati, MD^F
 Karl Schaller, MD^P
 Wouter I. Schievink, MD^F
 Clemens M. Schirmer, MD^{P,F}
 Cody D. Schlaff, MD^F
 Richard P. Schlenk, MD^{P,F}
 Michael Schmidt, MD^F
 Brian Schmit, PhD^F
 Steven J. Schneider, MD^F
 Michael Schuder, MD^{P,F}
 Lonni Schultz, PhD^F
 Peter Schultz, MD^F
 Jason M. Schwab, MD^P
 Michael Schwartz, MD^F
 Patrick Schweder, MD^F
 Daniel M. Sciuabba, BS, MD^F
 Ciera Scott, BA^F
 Edward W. Scott, PhD^F
 R. Michael Scott, MD^F
 Alfred Pokmgeng See, BS^F
 Mario Seguin, MD^F
 Laligam N. Sekhar, MD, FACS^F
 Chandra N. Sen, MD^F
 Meryl A. Severson, MD^F
 Mark Edwin Shaffrey, MD^F
 Pratish Shah, MD^F
 Javed Shahid, MD^F
 Ushananthini Shanmugalingam, BSc^F
 Kathirkamanathan Shanmuganathan, MD^F

DISCLOSURE INFORMATION

Chevis N. Shannon, MPH, MBA ^F	Volker K. H. Sonntag, MD ^F	Wesley Thevathasan, MD ^F	Tiffini Voss, MD ^F	Mohan Y.S. ^P
Ashwini Dayal Sharan, MD ^{P,F}	Thierry Soulas, MA ^F	Stephen Thom, MD, PhD ^F	Miroslav J. Kucik, MD, PhD	Dimitriy Yablonskiy, PhD ^F
Nikhil Sharma, BSE ^F	Marko Spasic, MD ^F	David G.T. Thomas, MD ^F	Stuart Walbridge, BS ^F	Sanjay Yadla, MD ^F
Sunjay Vishnu Sharma, MD ^F	Julian Spears, MD ^F	Bobbie Thompson, MD ^{P,F}	M. Sami Walid, MD, PhD ^F	Mir Yadullahi, MD ^F
David Shau, BS ^F	Robert J. Spinner, MD ^F	Byron Gregory Thompson, MD ^F	John Walker, MD ^F	Chunzhang Yang, MD, PhD ^F
Jason P. Sheehan, MD, PhD, FACS ^{P,F}	Alejandro M. Spiotta, MD ^F	Eric M. Thompson, MD ^F	Beverly C. Walters, MD ^F	Huai-Che Yang, MD ^F
Jonas Sheehan, MD, FACS ^{P,F}	Georgios Stamatopoulos, MD ^F	Teodoro Tigno, MD ^F	Hongqiang Wang, PhD ^F	Isaac Yang, MD ^F
Seung-Hoon Sheen, MD ^F	Marin F. Stancic, MD ^F	Stavropoula I. Tjounakaris, MD ^F	Jian Wang, MD ^F	Kevin C. Yao, MD ^F
Jingjing Shen, MD ^F	Robert M. Starke, MD, MSc ^{P,F}	Boguslaw Tomanek, PhD ^F	Shouyan Wang, PhD ^F	Chester Yarbrough, MD ^F
Sameer A. Sheth, MD, PhD ^{P,F}	Deanne L. Starr ^P	Toshiki Tomori, MD ^F	Benjamin Warf, MD ^F	Sevil Yasar, MD, PhD ^F
Ehab Shiban, MD ^F	Karen Steger-May, MA ^F	Steven A. Toms, MD, MPH, FACS ^F	Laurence Dale Watkins, MBBS ^{Chir^F}	Parham Yashar, MD ^F
Josh Shimony, MD ^F	Sherman C. Stein, MD ^F	Matthew J. Tormenti, MD ^F	James Watson, MD ^F	Amanda Yaun, MD ^F
Benjamin Shin, BS ^F	Gary K. Steinberg, MD, PhD ^F	James Torner, MS, PhD ^F	Jason Andrew Weaver, MD ^F	Andrew Yew, MD ^F
Hyae-Young Shin, RN ^F	James Stephen, MD ^F	Emilia Toth, MS ^F	Kyle Weaver, MD ^F	Narayan Yoganandan, PhD ^F
John H. Shin, MD ^P	Frederick L. Stephens, MD ^F	Zulma Sarah Tovar-Spinoza, MD ^F	Adam Webb, MD ^F	Mi-Sook Yong, RN ^F
Zhu Shoutian, MD ^F	Michael F. Stiefel, MD, PhD ^F	Tomoaki Toyone, MD ^F	K. Michael Webb, MD ^F	Soo Han Yoon, MD ^F
Regina N. Shupak ^P	Michael Stoffel, MD ^F	Raimund Trabold, MD ^F	Sharon W. Webb, MD ^F	Michelle York, MD ^F
Brenda A. Sides, MA ^F	Michael Stoker, MD ^F	Rhoda M. Tran ^P	Christoph T. Weidemann, PhD ^F	Koichi Yoshida, MD ^F
Kaushik Sil, MBBS, MS, DNB ^F	Marcus A. Stoodley, PhD, FRACS, MBBS, BSc ^F	Bruce I. Tranmer, MD, FACS, FRCS(C) ^F	Philip R. Weinstein, MD ^F	Daniel Yashor, MD ^F
Peter Silburn, MD ^F	Phillip B. Storm, MD ^F	Laxmi Narayan Tripathy, MS, MCh, FRCS, CCST(UK) ^F	Irving Weissman, MD ^F	Chao You, MD ^F
Karl A. Sillay, MD ^F	Carrie Stover, NP-C ^F	Gregory R. Trost, MD ^{P,F}	Cathy A. Welch, MD ^F	Alfred Byron Young, MD ^F
Antonio Silvani, MD ^F	Andrea L. Strayer, BSN ^F	Christopher Trussell, MD ^F	John Wellons, MD ^F	Geoffrey Young, MD ^F
Alyson Silverberg, NP ^F	Sara Stream, MD ^F	Jennifer Tseng, MD, MPH ^F	Patrick Y. Wen, MD ^F	Yasutsugu Yukawa, MD ^F
Bruce Silverman, DO ^F	Don Stredney ^F	R. Shane Tubbs, PhD, PA-C ^F	Erick Michael Westbroeck, MD ^F	Alp Yurter, MD ^F
Xiutian Sima, MD ^F	Ann Stroink, MD ^P	Oana Tudusciuc, MD ^F	Nicholas Michael Wetjen, MD, BS ^F	Miguel Yus, MD ^F
Frederick A. Simeone, MD ^F	Christian Strong, MD ^F	Luis M. Tumialan, MD ^F	Kum Whang, MD, PhD ^F	Katie Zacherl, MD ^F
Scott Douglas Simon, MD ^F	John Christos Styliaras, BA, BS, MS, MD ^F	Ugur Ture, MD ^P	Robert E. Wharen, MD ^F	Gabriel Zada, MD ^F
Gary R. Simonds, MD ^P	Daniel Sucato, MD ^F	Raymond D. Turner, MD ^F	Anne-Marie Wheeler, MD ^F	Ross Zafonte, DO ^F
Narina Simonian, BS ^F	Michael Edward Sughrue, MD ^F	Betty Tyler, BA ^F	Christopher J. Wheeler, PhD ^F	Eric L. Zager, MD ^F
Hakan Simsek, MD ^F	Dima Suki, PhD ^F	Elizabeth C. Tyler-Kabara, MD, PhD ^F	Shirley Whitkanack, BS ^F	Kareem A. Zaghoul, MD, PhD ^F
Tanya Simuni, MD ^F	GuoHua Sun, MD ^F	Istvan Ulbert, MD, PhD ^F	Robert G. Whitmore, MD ^F	Gregory Zaharchuk, MD ^F
Maughan K. Sindhvani, MD ^F	Ping Sun, MD ^F	Jamie Sue Ullman, MD ^P	Alan Whone, MBChB, MRCS, PhD ^F	Hasan Zaidi, MD ^F
Anoushka Singh, PhD ^F	Narayan Sundaresan, MD ^F	John L. Ulmer, MD ^F	Robert Thomas Wicks, BS, BA ^F	Omar Akram Zalatimo, MD ^F
Pankaj Kumar Singh, MS, MCh ^F	Kranthi Kumar Sunnepaneni, MD ^F	Enrique Urculo, MD ^F	Angus A. Wilfong, MD ^F	Salvatore M. Zavarella, DO ^F
Saurbh Singhal, MD ^F	Daniel L. Surdell, MD ^P	Phillip A. Utter, MD ^F	Ziv Williams, MD ^F	Jay Zhang, MD ^F
Amit Singla, MBBS ^F	Satoshi Suzuki, MD, PhD ^F	Alexander R. Vaccaro, MD ^F	Brian K. Willis, MD, FACS ^F	Shihao Zhang, MD ^F
Sumit Sinha, MS, MCh ^F	Marc H. Symons, PhD ^F	Sudhakar Vadivelu, DO ^F	Jefferson Wilson, MD ^F	Wei Zhang, PhD ^F
Sait Sirin, MD ^F	Nicholas J. Szerlip, MD ^{P,F}	Sandeep S. Vaidya, MD ^F	John Allen Wilson, MD, FACS ^F	Yi-Chen Zhang, BS ^F
Mevan Siriwardane, MS ^F	Viviane S. Tabar, MD ^F	Kunal Vakharia, MD ^F	Christopher J. Winfree, MD ^{P,F}	Heng Zhao, MD ^F
Ahilan Sivaganesan, BA ^F	Leonello Tacconi, MD ^F	Sharif Vakili, MD ^F	Max Wintermark, MD ^F	Zhong Zheng, BS ^F
Stephen Skirboll, MD ^F	Rafael J. Tamargo, MD ^F	Alex B. Valadka, MD ^F	Jeffrey H. Wisoff, MD ^F	Liangxue Zhou, MD ^F
Richard L. Skolasky, MD ^F	Takashi Tamiya, MD ^F	Pablo A. Valdes, BS ^F	Andrew Wolf, MD ^F	Qiang Zhou, MD ^F
Nolan Skop, MS ^F	Gamaliel Tan, MD ^F	Lisa Vanevenhoven, PharmD ^F	John Wolf, PhD ^F	Qun-Yong Zhou, MD ^F
Robert Smee, MBBS, FRANZCR ^F	Masato Tanaka, MD ^F	G. Edward Vates, MD, PhD ^F	Christopher E. Wolfla, MD ^{P,F}	Zhengping Zhuang, MD, PhD ^F
Christian Smith, PhD ^F	Shota Tanaka, MD ^F	Rahul Ved, Mch ^F	Jean-Paul Wolinsky, MD ^F	Mehmet Zileli, MD ^F
Edward R. Smith, MD ^P	Yoji Tanaka, MD ^F	Anastasios Venetikidis, MD ^F	Henry H. Woo, MD ^F	Gregory J. Zipfel, MD ^{P,F}
Kris A. Smith, MD ^F	Chi-Tun Tang, MD ^F	Sandya Venugopal, BSc, MBBS, MRCS (Ed) ^F	M. Neil Woodall, MD ^F	Mateo Ziu, MD ^F
Tony P. Smith, MD ^F	Naoki Tani, MD ^F	Matthew Vibbert, MD ^F	Fred Wooten, MD ^F	Ali R. Zomorodi, MD ^F
Saksith Smithason, MD ^F	Andrew Tarnaris, MBBS, FRCS ^F	Ashwin Viswanathan, MD ^F	Susan E. Wozniak, BA, BS ^F	Mario Zuccarello, MD ^F
Matthew D. Smyth, MD ^F	Marcos S. Tagagiba, MD, PhD ^F	Elio Vivas, MD ^F	David Wrubel, MD ^P	Edie E. Zusan, MD ^{P,F}
Laura Ann Snyder, MD ^F	Nancy Temkin, PhD ^F	Alexander H. Vo, PhD ^F	Hope H. Wu, MD ^F	Benjamin M. Zussman, BS ^F
Carl Snyderman, MD ^F	Anna R. Terry, MD ^F	Hannes Vogel, MD ^F	Heiko Wurdak, MD ^F	Aeilko H. Zwinderman, PhD ^F
Teresa Sola, MD ^F	Sonia Teufack, MD ^{P,F}	Michael A. Vogelbaum, MD, PhD ^{P,F}	Scott Wylie, PhD ^F	
Carlo L. Solero, MD ^F	Vismay Thakkar, MD ^F	Jason M. Voorhies, MD ^F	X Sunney Xie, PhD ^F	
David Solomon, MD ^F	Philip V. Theodosopoulos, MD ^{P,F}		Ye Xiong, MD, PhD ^F	
Robert A. Solomon, MD ^F	Thana Theofanis, BA ^F		Jianguo Xu, MD ^F	
Vinay Somashekar, BS ^F	Jacques Theron, MD ^F		Zheng Xu, MD ^F	
Sebastian M. Sonanini, MD ^F				

DISCLOSURE INFORMATION

NON-FDA APPROVED LISTING

Faculty Presentations Including Non-FDA Approved Investigational Drugs or Devices

October 1, 2011

PC04: The Essentials of Neurosurgical ICU Management
William M. Coplin

PC06: Cervical Spondylotic Myelopathy and Radiculopathy: Treatment Approaches and Options
Kurt M. Eichholz

October 2, 2011

PC08: Inpatient and Outpatient Management Dilemmas for Allied Health Care Professionals
Nathaniel P. Brooks

PC09: Minimally Invasive Spinal Surgery
Kurt M. Eichholz

PC11: Simulation Based Neurosurgical Training
James S. Harrop, Ashwini Dayal Sharan

PC12: Trauma Update Part I: Traumatic Brain Injury
Raj K. Narayan, Harold L. Rekate

PC13: Cranial Radiosurgery Update
Antonio A. F. De Salles

PC14: Contemporary Principles of Spinal Deformity Surgery
Charles Kuntz, IV, Frank La Marca

PC15: Using Evidence-Based Medicine to Manage Spinal Disorders
John Chi

PC16: Masters of Cranial Neuroendoscopy
Theodore H. Schwartz, James M. Drake

PC18: Deep Brain Stimulation: Indications and Emerging Applications
Kelly D. Foote, Robert E. Gross, Clement Hamani, Andre Machado

PC19: Cranial Neurosurgery: Complication Avoidance and Management
Raj K. Narayan

PC20: Trauma Update Part II: Spinal Cord and Spinal Column Injury
James S. Harrop

PC25: My Worst Spinal Complication: What I Learned
Charles Kuntz, IV, Praveen V. Mummaneni

PC27: Operative Indications, Options and Technique for Epilepsy
Guy M. McKhann, David W. Roberts, Robert E. Wharen

PC28: Expanding Your Neurosurgical Pain Practice
Jeffrey A. Brown, Julie G. Pilitsis, Konstantin V. Slavin, Christopher J. Winfree

PC29: Ethics in Neurosurgical Practice: Designing a High Quality, Meaningful, and Personally Satisfying Clinical Practice
Charles V. Burton

October 3, 2011

General Scientific Session I
Ashwini Dayal Sharan

M03: Disc Replacement in the Cervical and Lumbar Spine
Carl Lauryssen

M04: Nuances of Minimally Invasive Spine Surgery
Luiz Pimenta

M05: Pseudoarthrosis of the Cervical and Lumbar Spine
Christopher E. Wolfla

M06: Multidisciplinary Management of Subarachnoid

Hemorrhage and Vasospasm
Kevin M. Cockroft

M07: Hematology and Coagulation for Neurosurgeons: Dangers and Solutions
Issam A. Awad, Edward A.M. Duckworth

M08: Incorporating Psychosurgery into Your Neurosurgical Practice
Emad N. Eskandar, Kelly D. Foote, Robert E. Gross, Brian H. Kopell

M09: Hemorrhagic and Ischemic Stroke Update for Allied Health Professionals
Ricardo A. Hanel, Erol Veznedaroglu

M10: Tumor Resection in High-Risk Locations: Techniques to Minimize Collateral Damage
Gerardo Conesa

M11: Staying Current in Vestibular Schwannoma Management
Enrique Urculo

M15: Surgical, Interventional and Radiosurgical Approaches to Intracranial Arteriovenous Malformations
Bernard R. Bendok

Section on Cerebrovascular Surgery Oral Presentations
920 R Loch Macdonald

Section on Disorders of the Spine and Peripheral Nerves Oral Presentations
929 Manish K. Kasliwal, David Baskins, Vincent C. Traynelis

Section on Pain Oral Presentations
Joshua M. Rosenow, Christopher J. Winfree, 941 Antonios Mammis,

Alon Y. Mogilner, 943 Krishna Kumar, Syed A.A. Rizvi, Mariam Abbas, Sharon Bishop, 944 Krishna Kumar, Syed A.A. Rizvi, Sharon Bishop, 945 Adam J. Sachs, Harish Babu, Jaimie M. Henderson

Section on Pediatric Neurological Surgery Oral Presentations
956 Eric M. Thompson, Susan E. Wozniak, Colin Roberts, Valerie C. Anderson, Nathan R. Selden

Section on Stereotactic and Functional Neurosurgery Oral Presentations
Aviva Abosch, Konstantin V. Slavin, 965 Stephane Palfi, Jean Marc Gurruchaga, Bechir Jarraya, Scott Ralph, Helene Lepetit, Hiro Iwamura, Naoki Tani, James Miskin, Sarah Scorer, M. Kelleher, Xavier Drouot, Sonia Lavis, Aurelie Kas, Anne Laure Ramelli, Thierry Soulas, Patrice Dolphin, Ku Abhay, 966 W. Jeffrey Elias, Diane Huss, Mohamad A. Khaled, Stephen J. Monteith, Robert Frynsinger, Johanna Looma, Jason Druzgal, Scott Wylie, Tiffini Voss, Madaline Harrison, Fred Wooten, Max Wintermark, 969 Muhammad Abd-El-Barr, Nicholas Maling, Kelly D. Foote, Michael S. Okun, Justin Sanchez

Section on Tumors Oral Presentations
971 Garnette R. Sutherland, Sanju Lama, 976 Costas George, Hadjipanayis, Simon Ronald Platt, Edjah K. Nduom,

Marc Kent, Courtenay Freeman, Revaz Machaidze, Milota Kaluzova

Section on Cerebrovascular Surgery Neurosurgical Forum

29 Satoshi Suzuki, Michiyoshi Sato, Shinzo Ota, Tomoko Fukushima, Akiko Ota, Taisei Ota, Katsuya Goto, 31 Sharon W. Webb, Parham Yashar, Peter Kan, 36 Sonia Teufack, L. Fernando Gonzalez, Pascal Jabbour, Stavropoula I. Tjoumakaris, David S. Gordon, Aaron S. Dumont, Robert H. Rosenwasser

Section on Disorders of the Spine and Peripheral Nerves Neurosurgical Forum

62 Ian G. Dorward, Lawrence Lenke, Woojin Cho, Linda A. Koester, Brenda A. Sides, 69 Luis Marchi, Leonardo Oliveira, Etevaldo Coutinho, Luiz Pimenta, 103 Kaveh Khajavi

Section on Pain Neurosurgical Forum

Christopher J. Winfree, 134 Sean J. Nagel, Kara D. Beasley, Milind S. Deogaonkar, Andre Machado, 136 Sarah B. Alme, Ajinkya Joglekar

Section on Stereotactic and Functional Neurosurgery Neurosurgical Forum

Aviva Abosch, Konstantin V. Slavin, 161 Kathryn L. Holloway, George Gitche, Dimitri Karles, Alen Doceff, 177 James McInerney, Omar Akram Zalatimo, Moksha Ranasinghe, Gareth M. Davies, Elana Farace

DISCLOSURE INFORMATION

Section on Tumors Neurosurgical Forum

187 Manabu Onishi, Tomotsugu Ichikawa, Kazuhiko Kurozumi, Kentaro Fujii, Koichi Yoshida, Satoshi Inoue, Hiroyuki Michiue, E. Antonio ChioCCA, Balveen Kaur, Isao Date
190 Juan A. Barcia, Ana Sanz, Paloma Balugo, Pedro Alonso-Lera, Juan Raúl Brin, Javier Saceda, Miguel Yus, Manuela Jorquera, Mercedes González-Hidalgo, M. Victoria Acedo, Tomás Ortiz, Antonio Oliviero
196 Ian F. Pollack, Regina Jakacki, Lisa H. Butterfield, Hideho Okada
199 Sarah C. Jost, Keith M. Rich, Parinaz Massoumzadeh, Josh Shimony, Dimitriy Yablonskiy, Tammie Benzinger
214 Orin Bloch, Brian J. Jian, Rajwant Kaur, Michael Prados, Susan Chang, Jennifer L. Clarke, Nicholas Butowski, Michael William McDermott, Mitchel S. Berger, Manish Kumar Aghi, Andrew T. Parsa
226 Roberto Jose Diaz, Christian Smith, James T. Rutka

October 4, 2011

T17: Guidelines for Surgical Management Lumbar Spine Surgery
Sanjay S. Dhall
Eric J. Woodard

T18: Guidelines for Surgical Management of Cervical Spondylotic Myelopathy and OPLL
Michael W. Groff

T19: Managing Difficult Surgical Scenarios in Spinal Surgery
Michele Marie Johnson

T20: Multidisciplinary Management Strategies for Unruptured Aneurysms
Jose Maria Roda

T21: Advances in the Management of Trigeminal Neuralgia and Facial Pain
Francisco Robaina
Konstantin V. Slavin

T22: Surgery and Radiosurgery for Epilepsy
Warren W. Boling
Ashwini Dayal Sharan

T27: Surgical Resection of Low-Grade Gliomas: Current Strategies and Controversies
Susan Chang

T28: Treatment Dilemmas: Normal Pressure Hydrocephalus and Pseudotumor Cerebri
Harold L. Rekate

T29: Spine Surgery in the Geriatric Population: Current Strategies and Controversies
Frank La Marca

T30: Spine and Peripheral Nerve Injuries in Sports
Nicholas Theodore
Christopher J. Winfree

Section on Stereotactic and Functional Neurosurgery
Aviva Abosch
David Charles
Emad N. Eskandar
Kelly D. Foote
Konstantin V. Slavin

Section on Tumors
Daniel P. Cahill
Michael A. Vogelbaum

Dinner Seminar I
Low Grade Glioma
Jaishri Blakeley

October 5, 2011

General Scientific Session III
Douglas L. Brockmeyer
Julie G. Pilitsis

W32: Contemporary Management of Traumatic Spine and Spinal Cord Injury
Christopher E. Wolfla

W33: Treatment of Cervical Radiculopathy: Anterior vs. Posterior Approaches
Richard G. Fessler

W36: Pediatric Spine Management (Traumatic and Congenital)
Richard C. E. Anderson

W37: Lessons Learned: Avoidance and Management of Complications of Aneurysm Surgery
Andreas Raabe

W41: Advances in Malignant Glioma Treatment
David W. Roberts

W44: Innovations in the Management of Intracerebral Hemorrhage
Issam A. Awad

W45: Comprehensive Management Strategies for the Treatment of Movement Disorders
Juan Barcia
Robert E. Gross
Michael Gordon Kaplitt

W46: Multidisciplinary Management of Spinal Metastases
Narayan Sundaresan

Multidisciplinary Oral Presentations
984 Deepak Kumar Gupta
989 David A. Cavanaugh, Ajay Jawahar, Pierce D. Nunley, Domagoj Coric, Phillip A. Utter, Eubulus J. Kerr, Charles R. Gordon, Guy O. Danielson

Section on Pain
Julie G. Pilitsis
Ashwini Dayal Sharan
Konstantin V. Slavin
Christopher J. Winfree

Dinner Seminar IV
Cervical and Lumbar Arthroplasty
Domagoj Coric

October 6, 2011

General Scientific Session IV
Edward C. Benzel
Domagoj Coric
David W. Roberts
Michael A. Vogelbaum

Digital Posters

1023 Robert Emerson Ayer
1098 Inaki Arrotegui
1119 Robert E. Elliott, Amr Morsi, Michael L. Smith, Anthony Frempong-Boadu
1120 Robert E. Elliott, Matthew M. Kang, Michael L. Smith, Anthony Frempong-Boadu
1121 Peter C. Gerszten, Reginald J. Davis, William Charles Welch, John Sherman, Benjamin J. Remington, James H. Maxwell, Neel Anand, Rolando Garcia, Richard B. Rodgers, Scott H. Kitchel, Thomas Dimmig, Guy Lee, Mike Sun
1122 Chul-Woo Lee, Kang-Jun Yoon
1133 Luis Marchi, Leonardo Oliveira, Etevaldo Coutinho, Luiz Pimenta
1135 Luis Marchi, Leonardo Oliveira, Etevaldo Coutinho, Luiz Pimenta
1144 Robert M. Galler
1149 Boris Silberstein, Bruskin Alexander, Alexandrovsky Vitaly
1151 Haines Paik, Daniel Gene Kang, Ronald A. Lehman, Mario J. Cardoso, Anton E. Dmitriev, Rachel Gaume, Divya Ambati
1162 Khalid A. Sethi, Thomas J. Webster, Gorth Deborah, Christine Ann Snyder
1200 Javier Saceda, Alberto Isla, Susana Santiago, Carmen Morales, Juan Barcia, Kenan Deniz
1202 Kamran Majid, Mark Moldavsky, Brandon Bucklen, Mir Hussain, Saif Khalil
1203 Joshua E. Heller, Justin S. Smith, Woojin Cho, Kai-Ming G. Fu, Daniel R. Chernavsky, Christopher I. Shaffrey
1204 Kamran Majid, Mark Moldavsky, Brandon Bucklen, Mir Hussain, Saif Khalil
1206 Reginald J. Davis, Jon Block, Larry Miller
1215 John Stark

1217 John Stark
1239 Namath Syed Hussain, Mick J. Perez-Cruet
1240 Missoum Moumene
1252 Sandro M. Krieg, Raimund Trabold, Sebastian M. Sonanini, Nikolaus Plesnila
1272 Sarah B. Alme, Benjamin Somberg
1278 Susan E. Wozniak, Eric M. Thompson, Nathan R. Selden
1299 Robert E. Elliott, Amr Morsi, Eric Geller, Orrin Devinsky, Werner Doyle
1306 Tomotsugu Ichikawa, Takashi Agari, Masahiro Kameda, Toru Satoh, Isao Date
1319 James Harris Stephen, Casey H. Halpern, Usha Balmuri, Cristian Barrios, Jared M. Pisapia, John Wolf, Kyle Kampman, Arthur L. Caplan, Gordon H. Baltuch, Sherman C. Stein
1361 Motomasa Furuse, Shin-Ichi Miyatake, Erina Yoritsune, Shinji Kawabata, Toshihiko Kuroiwa
1371 Tadashi Nariai, Motoki Inaji, Yoji Tanaka, Masaru Aoyagi, Kiichi Ishiwata, Jun Toyohara, Takuya Kawabe, Masaaki Yamamoto, Kikuo Ohno
1376 A. Samy K. Youssef, Angela Elizabeth Downes, Khaled Al bahy, Ali Kotb, Fernando L. Vale, Harry R. Van Loveren
1409 Kimon Bekelis, Pablo A. Valdes, Frederic Leblond, A. Kim, Brian Wilson, Brent T. Harris, Nathan E. Simmons, Kadir Erkmén, Keith Paulsen, David W. Roberts
1418 Bartolome Bejarano
1467 David Fortin, Jérémy Guérin, Bertin Nahum
1472 David Fortin, Pierre-Etienne Morin, David Mathieu, Francois-Michel Paré
1503 Hirofumi Nakatomi

PRACTICAL COURSES

PC01 Room 140AB 7:30 AM – 5:00 PM

Complimentary for Residents and Junior Faculty!

NINDS/CNS Workshop on Grant Writing and Career Development

Course Directors: E. Antonio Chiocca, Stephen J. Korn

Faculty: Mitchel S. Berger, S. Thomas Carmichael, Robert J. Dempsey, Aaron S. Dumont, Frances Jensen, Walter J. Koroshetz, Michelle Monje-Deisseroth, John K. Park, Natalia Rost, Gregory J. Zipfel

Learning Objectives: Balancing a research career and clinical neurosurgery is challenging. A key to success is to master the art of grant writing. This course is led by faculty who have successfully obtained funding from the National Institutes of Health (NIH) at different stages of their careers and faculty that sit or have sat on NIH study sections that review grants. Participants are encouraged to bring their own grants-in-progress; time will be set aside for the faculty to review these grants and provide individual instruction. Upon completion, participants will be able to describe the methods for writing successful grants, both for the NIH and private foundations and prepare their own grant applications based on tips and tricks that have helped the faculty write their own successful grants.

This course is restricted to Residents and junior faculty (Five years or less out from completion of training). No CME will be awarded for this course. Please visit the Registration Desk to obtain a ticket.

PC02 Room 145A 1:00 – 5:00 PM **\$450**

3-D Anatomy (Supratentorial)

Course Director: Albert L. Rhoton, Jr.

Learning Objectives: This course will provide three-dimensional microsurgical instruction on the following topics: routes through the anterior and posterior cerebrum and temporal lobe; anatomy and approaches to the lateral and third ventricles and pineal region; anterior skull base and cavernous sinus; and transsphenoidal, transmaxillary and transoral approaches. Upon completion, participants will be able to plan the routes through the anterior and posterior cerebrum and temporal lobe and will identify the anatomy and approaches to the lateral and third ventricles and pineal region, the anterior skull base and cavernous sinus and transsphenoidal, transmaxillary and transoral approaches.

PC03 Room 202B 1:00 – 5:00 PM **\$450**

Surgical Management of Tumors in Eloquent Regions

Course Director: Linda M. Liau

Faculty: Mitchel S. Berger, Hugues Duffau, Allan H. Friedman, Guy M. McKhann, Nader Pouratian

Learning Objectives: Upon completion, participants will be able to identify the indications for surgical management of tumors within eloquent areas of the brain. They will also be able to 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. Additionally, they will be able to strategize how to avoid common technical errors in brain mapping techniques.

PC04 Room 146C 1:00 – 5:00 PM **\$275**

The Essentials of Neurosurgical ICU Management

Course Directors: Owen B. Samuels, Alex B. Valadka

Faculty: William Coplin, Peter LeRoux, Adam Webb

Learning Objectives: This course focuses on ancillary care personnel and will provide a broad spectrum of information regarding the management of critically-ill neurosurgical patients. Upon completion, participants will be able to incorporate the most up-to-date recommendations into treatment plans for increased intracranial pressure management, hemodynamic monitoring and measurement, ventilatory support, infection prevention and treatment, neurological examination, and electrocorticography monitoring.

Nursing contact hours may be provided through AANN. The American Association of Neuroscience Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. Physician assistants will receive credit for attendance. Each physician assistant will need to contact their individual membership association and certification board to determine the requirements for accepting credits. All attendees will receive a confirmation of attendance.

PC05 Room 144A 1:00 – 5:00 PM **\$450**

CPT Coding Review and What to Expect in 2012

Course Director: Joseph S. Cheng

Faculty: Mina Foroohar, William Mitchell, Kimberly Pollock, John K. Ratliff, G. Edward Vates

Learning Objectives: This course provides a summary of the anticipated CPT 2012 coding changes and also reviews the 2011 coding changes that affect neurosurgeons. Upon completion, 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. They will also be able to strategize how to avoid compliance issues with regard to new regulations.

PRACTICAL COURSES

PC06 Room 206 1:00 – 5:00 PM \$550

Cervical Spondylotic Myelopathy and Radiculopathy: Treatment Approaches and Options

Course Director: Michael G. Kaiser

Faculty: Kurt M. Eichholz, James S. Harrop, Langston T. Holly, John E. O'Toole

Learning Objectives: The pathophysiology, clinical presentation, and current diagnostic modalities involved in the care of cervical degenerative disease will be discussed in this course. 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. Upon completion, 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, as well as steps to avoid common complications.

PC07 Room 143B 1:00 – 5:00 PM \$450

Spine Biomechanics: A Focus on Junctional Pathology

Course Director: Edward C. Benzel

Faculty: Ajit A. Krishnaney, Praveen V. Mummaneni, Gregory R. Trost, Michael Y. Wang

Learning Objectives: This course presents the physical principles and biomechanical foundations of spinal surgery and stabilization via a didactic and interactive case discussion format. Upon completion, participants will be able to integrate biomechanical principles and strategies into their surgical planning and strategize to avoid and manage complications.

... Is Dr. Lee presenting any new breakthroughs on arachnoid cysts?



Stay connected with the CNS Mobile Meeting Guide!

- ★ Browse abstracts and digital posters.
- ★ Search by author, key words or subspecialty.



iPhone and iPad users may download the app from the Apple App Store.

Connect with your Android and laptop at <http://m.cns.org>!

Saturday, October 1

PRACTICAL COURSES

PC08 Room 143A 8:00 AM – 4:00 PM \$325

Inpatient and Outpatient Management Dilemmas for Allied Health Care Professionals

Course Directors: John A. Jane, Jr.,

Andrea L. Strayer, MSN, APNP, CNRN

Faculty: Nathaniel P. Brooks, Aaron S. Dumont, Elena Farace, David O. Okonkwo, Nader Pouratian, Mark Edwin Shaffrey, Justin S. Smith, Michael P. Steinmetz

Learning Objectives: Upon completion, participants will be able to discuss current evidence, clinical management of a variety of neurosurgical diagnoses such as trauma, cerebral aneurysm, and brain tumors. Participants will be able to analyze minimally invasive spine surgery options, endoscopic approaches to the pituitary and skull base as well as restorative neurosurgery. Lastly, participants will investigate the marked increase in falls in the elderly and implications for care as well as the prevention and treatment of surgical site infection.

Nursing contact hours may be provided through AANN. The American Association of Neuroscience Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. Physician assistants will receive credit for attendance. Each physician assistant will need to contact his or her individual membership association and certification board to determine the requirements for accepting credits. All attendees will receive a confirmation of attendance.

PC09 Room 151AB 8:00 AM – 4:00 PM \$1,600

Minimally Invasive Spinal Surgery

Course Director: Richard G. Fessler

Faculty: Kurt M. Eichholz, Langston T. Holly, John C. Liu, Alfred T. Ogden, John E. O'Toole, Avelino Parajon, Justin S. Smith, Trent Lane Tredway

Learning Objectives: This course will focus on minimally invasive procedures for cervical and lumbar spine surgery. Techniques for decompression, fixation, and fusion will be discussed. Upon completion, participants will be able to incorporate various minimally invasive techniques into their approach for cervical and lumbar spine surgery, and identify the indications, results and potential complications for these procedures.

Hands-on lab with specimens.

PC10 Room 146C 8:00 AM – 4:00 PM \$500

Brain Tumor Update

Course Directors: Frederick F. Lang, Andrew T. Parsa

Faculty: Manish K. Aghi, Frederick G. Barker, John A. Boockvar, Jeffrey N. Bruce, Johnny B. Delashaw, Franco DeMonte, Michael Lim, Russell R. Lonser, Mark Edwin Shaffrey, Charles Teo, Philip V. Theodosopoulos, Isaac Yang

Learning Objectives: This course includes current research topics but emphasizes 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 be also be discussed. Upon completion, participants will be able to formulate treatment plans based on the state of the art management of benign and malignant brain tumors including meningiomas, acoustic neuromas, skull base tumors, pediatric tumors and

metastases. Participants will also be able to incorporate current concepts in glioma management including surgical techniques, adjuvant treatments, tumor biology and clinical management decisions into their treatment plans.

PC11 Room 154A 8:00 AM – 4:00 PM Complimentary

Simulation Based Neurosurgical Training

Course Directors: James S. Harrop, Darlene Angela Lobel, Ali R. Rezaei

Faculty: Paul A. Anderson, Bernard R. Bendok, Peter Campbell, Rohan Chitale, James B. Elder, Thomas Kerwin, Elad I. Levy, J.D. Mocco, Daniel M. Prevedello, Andrew J. Ringer, Ben Z. Roitberg, Clemens M. Schirmer, Ashwini D. Sharan, Adnan H. Siddiqui, Don Stredney, Erol Veznedaroglu

Learning Objectives: Upon completion, 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. Participants will also be able to describe indications for and basic concepts and techniques in management of traumatic brain injury, degenerative spine disease, cerebrovascular disease, and skull base tumors.

This course is for PGY3, PGY4 and PGY5 residents. Registration is limited to 27 residents. Please visit the Registration Desk to obtain a ticket.

PC12 Room 146A 8:00 – 11:30 AM \$450

Trauma Update Part I: Traumatic Brain Injury

Course Director: Raj K. Narayan

Faculty: M. Ross Bullock, Geoffrey T. Manley, David O. Okonkwo, Harold ReKate, Lori Anne Shutter, Shelly D. Timmons

Learning Objectives: This course reviews the current thinking on the non-surgical and surgical treatment of traumatic brain injury in pediatrics and adults. Newer monitoring techniques, as well as promising new therapies, will be discussed. Upon completion, participants will be able to structure treatment plans around recent developments in this field, along with current management surgical and non-surgical strategies and guidelines.

PC13 Room 146B 8:00 – 11:30 AM \$450

Cranial Radiosurgery Update

Course Director: Randy L. Jensen

Faculty: David W. Andrews, Steven D. Chang, Antonio A.F. DeSalles, Michael William McDermott, Jason P. Sheehan, Andrew E. Sloan

Learning Objectives: Upon completion, participants will be able to recommend radiosurgery more safely by recognizing the appropriate use of radiosurgery for benign and malignant cranial lesions; differentiate the differences between the various radiosurgery delivery platforms; discuss radiosurgery delivery techniques to avoid injury to intracranial neurovascular structures; identify the indications for the use of radiosurgery for functional disorders and pain; and apply techniques learned in this course to formulate a radiosurgery plan for a given cranial pathology.

PRACTICAL COURSES

PC14 Room 147B 8:00 – 11:30 AM **\$450**

Contemporary Principles of Spinal Deformity Surgery

Course Directors: Praveen V. Mummaneni, Christopher I. Shaffrey
Faculty: Christopher P. Ames, James S. Harrop, Robert F. Heary, Tyler R. Koski, Charles Kuntz, IV, Frank La Marca, David O. Okonkwo

Learning Objectives: Upon completion, participants will be able to describe indications and surgical techniques for the correction of spinal deformity, identify common and uncommon complications and salvage strategies in complex deformity cases, and theorize spinal deformity case management using cases provided by the audience and by faculty.

PC15  Room 144B 8:00 – 11:30 AM **\$450**

Using Evidence-Based Medicine to Manage Spinal Disorders

Course Directors: Peter D. Angevine, Paul C. McCormick
Faculty: Mark H. Bilsky, John Chi, John E. O'Toole, Marjorie C. Wang

Learning Objectives: Topics to be discussed will include spinal tumors, degenerative cervical and lumbar disease, use of biological substances, and minimally invasive techniques. Upon completion, participants will be able to incorporate the latest evidence into their management of spinal disorders.

PC16  Room 147A 8:00 – 11:30 AM **\$450**

Masters of Cranial Neuroendoscopy

Course Directors: Alan R. Cohen, James M. Drake
Faculty: Philippe Decq, Jonathan A. Engh, J. Andre Grotenhuis, Carl B. Heilman, John Jane, Jr., David F. Jimenez, Henry W.S. Schroeder, Theodore H. Schwartz, Mark M. Souweidane, Charles Teo, John C. Wellons, III

Learning Objectives: This course will cover the management of pituitary adenomas, meningiomas, craniopharyngiomas, chordomas, hydrocephalus, intraventricular tumors and cysts and other skull base tumors. Upon completion, participants will be able to strategize the use of endoscopy for intracranial applications including endonasal and intraventricular approaches.

PC17 Room 145B 8:00 – 11:30 AM **\$450**

Open Aneurysm Surgery: A 3-D Practical Course

Course Directors: Byron Gregory Thompson, Michael T. Lawton
Faculty: Paul J. Camarata, Fady T. Charbel, Ali F. Krisht, Jacques J. Morcos, Howard A. Riina

Learning Objectives: Upon completion, participants will 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; and discuss adjunctive intraoperative imaging techniques to optimize obliteration of cerebral aneurysms with preservation of parent and branch vasculature.

PC18  Room 207A 8:00 – 11:30 AM **\$450**

Deep Brain Stimulation: Indications and Emerging Applications

Course Director: Robert E. Gross
Faculty: Kelly D. Foote, Clement Hamani, Zelma H. T. Kiss, Andre Machado, Karl A. Sillay

Learning Objectives: Upon completion, participants will be able to analyze the approved indications, the rationale for the various approved brain targets, and the outcomes from clinical trials of deep brain stimulation for Parkinson's disease, essential tremor and dystonia. They will also identify the rationale for non-approved targets being investigated for Parkinson's disease, essential tremor, and dystonia, consider the possible advantages over approved targets, and analyze preliminary outcomes from clinical trials of these targets. Participants will also be able to recognize possible non-approved indications for deep brain stimulation currently under investigation, including the epilepsies, psychiatric disorders, and Tourette syndrome; the rationale for the various targets being investigated; and preliminary outcomes from clinical trials.

PC19 Room 140B 12:30 – 4:00 PM **\$450**

Cranial Neurosurgery: Complication Avoidance and Management

Course Director: William T. Couldwell
Faculty: Ossama Al-Mefty, Alim-Louis Benabid, Mitchel S. Berger, Raj K. Narayan

Learning Objectives: Using case presentations, didactic lectures and interaction with faculty, clinical scenarios that may result in complications, with their appropriate management will be reviewed. Further, strategies designed to anticipate complications so that they may be avoided will also be discussed. Upon completion, participants will be able to identify common complications associated with a variety of cranial procedures and plan strategies to avoid and manage them.

PC20 Room 146A 12:30 – 4:00 PM **\$450**

Trauma Update Part II: Spinal Cord and Spinal Column Injury

Course Director: Michael G. Fehlings
Faculty: Bizhan Aarabi, Steven Casha, Richard G. Ellenbogen, James S. Harrop, Christopher I. Shaffrey

Learning Objectives: Upon completion, participants will be able to incorporate the classification of spinal trauma, principles of management of spinal cord injury (SCI) including the appropriate use of steroids and the timing of surgery and the principles of managing cervical, thoracic and thoracolumbar spine injuries into treatment plans. They will also be able to recognize emerging clinical trials in acute SCI and issues of pediatric spine trauma.

Sunday, October 2

PRACTICAL COURSES

PC21 Room 147A 12:30 – 4:00 PM **\$450**

Implementing and Utilizing the Metastatic Brain Tumor Clinical Practice Guidelines in Everyday Practice

Course Director: Steven N. Kalkanis

Faculty: David W. Andrews, Anthony L. Asher, Douglas Kondziolka, Mark E. Linskey, Jeffrey J. Olson

Learning Objectives: There has been a rapid evolution of evidence based medicine and guidelines for neurosurgery, including cranial disorders. This is a course on evidence-based medicine and guidelines for Neurosurgery. Specifically, the recent evidence-based medicine literature as reflected in guidelines will be reviewed concerning the treatment of cranial disorders. These will be discussed in terms of strengths, weaknesses and limitations in applying to clinical practice. The course will review neurosurgical guidelines for cranial disorders including cranial trauma, hydrocephalus and metastases. Upon completion, participants will be able to discuss the current state of evidence based medicine and guidelines for cranial disorders and construct a process for accruing evidence-based medicine and guidelines, as well as potential limitations.

PC22 Room 146B 12:30 – 4:00 PM **\$450**

Spinal Metastatic Tumors: Contemporary Multidisciplinary Treatment

Course Director: Peter C. Gerszten

Faculty: Lilyana Angelov, Mark H. Bilsky, Steven D. Chang, Jason P. Sheehan, Jason Andrew Weaver

Learning Objectives: This course will provide participants with an exposure to radiosurgery and newer adjuvant therapies for spine tumors. The course will include a detailed explanation of the radiobiological principles of hypofractionated radiotherapy. An emphasis will be placed on the indications and limitations of spine radiosurgery and other adjuvant therapies and how they might be used in combinations to treat both benign and malignant tumors of the spine. The various technologies available to perform spine radiosurgery will also be described and compared in detail. This will be a true practical course, with all participants having the opportunity for hands-on experience by planning actual cases. Upon completion, participants will be able to analyze the most commonly used techniques for spine radiosurgery; discuss the current indications and current literature regarding outcomes after spine radiosurgery; describe the current relative contraindications to spine radiosurgery; and strategize the mitigation of the potential risks and complications of spine radiosurgery.

PC23 Room 145A 12:30 – 4:00 PM **\$450**

3-D Anatomy (Infratentorial)

Course Director: Albert L. Rhoton, Jr.

Learning Objectives: This course will provide three-dimensional microsurgical instruction on the anatomy and approaches through the temporal bone; cerebellum and fourth ventricle; far lateral and transcondylar approaches; approaches to the cerebellopontine angle; and the anatomy and approaches to the jugular foramen. Upon completion, participants will be able to describe the anatomy of these areas and discuss the three-dimensional neurovascular relationships of each region.

PC24 Room 150A 12:30 – 4:00 PM **\$450**

Principles and Practice of Peripheral Nerve Surgery

Course Directors: Allan H. Friedman, Robert J. Spinner

Faculty: Allan J. Belzberg, Allen H. Maniker, Rajiv Midha, Lynda J.S. Yang, Eric L. Zager

Learning Objectives: Upon completion, participants will be able to assess patients with peripheral nerve lesions, including aspects of history, physical exam, electrodiagnostic and imaging modalities; discuss the relevant biology of nerve injury and regeneration; determine the selection of patients with nerve injury for operation including timing of intervention; identify nerve conditions that require emergency and urgent management; and plan for the management of patients with peripheral nerve tumors or common entrapment neuropathies.

PC25  Room 206 12:30 – 4:00 PM **\$500**

My Worst Spinal Complication: What I Learned

Course Director: Charles Kuntz, IV

Faculty: Robert J. Bohinski, Richard G. Fessler, Robert F. Heary, Praveen V. Mummaneni, Laurence D. Rhines, Christopher I. Shaffrey, Michael P. Steinmetz

Learning Objectives: 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. This course will present and review the avoidance, evaluation, pathophysiology, and treatment of surgical complications. Upon completion, participants will be able to integrate contemporary evaluation and pathophysiology recognition of spinal complications as well as complication avoidance and management strategies into their current treatment plans.

PC26 Room 207B 12:30 – 4:00 PM **\$450**

Neurocritical Care and Neurosurgical Emergencies Update

Course Director: Jack Jallo

Faculty: Pascal Jabbour, Douglas Laske, Christopher J. Madden, John K. Ratliff, Matthew Vibbert

Learning Objectives: This course is designed to promote rapid identification and a better understanding of the management of neurosurgical emergencies. Upon completion, participants will be able to design key management strategies for emergencies involving the brain, spine and peripheral nerves by evaluating the current evidence for patient specific therapies, applying the latest modalities in the management and understanding of neurosurgical emergencies, identifying controversies in management of these emergencies, considering the role of the surgeon in emergency neurosurgery and understanding the physiology of a variety of neurosurgical emergencies.

PRACTICAL COURSES

PC27 Room 144A 12:30 – 4:00 PM **\$450**

Operative Indications, Options and Techniques for Epilepsy

Course Director: Gordon H. Baltuch

Faculty: Nicholas M. Barbaro, Warren W. Boling, Guy M. McKhann, David W. Roberts, Robert E. Wharen, Kareem A. Zaghloul

Learning Objectives: The course is designed to cover the current thinking of the indications, various options and surgical management of medically intractable epilepsy patients. Upon completion, participants will be able to identify the indications, plan surgical techniques, and analyze results and complications of epilepsy surgery.

PC28 **NEW** Room 143B 12:30 – 4:00 PM **\$450**

Expanding Your Neurosurgical Pain Practice

Course Director: Julie G. Pilitsis

Faculty: Giovanni Broggi, Jeffrey A. Brown, Alon Y. Mogilner, Oren Sagher, Konstantin V. Slavin, Christopher J. Winfree

Learning Objectives: Upon completion, participants will be able to illustrate the physiology and operative techniques of recent advances in neurosurgical pain management; describe the current role of ablative neurosurgical procedures for pain and theorize how to efficiently and effectively perform pain procedures in a busy neurosurgical practice. **Please visit the Registration Desk to obtain a ticket.**

PC29 **NEW** Room 143C 12:30–4:00PM **Complimentary**

Ethics in Neurosurgical Practice: Designing a High Quality, Meaningful, and Personally Satisfying Clinical Practice

Course Director: Nicholas Bambakidis

Faculty: Edward C. Benzel, Charles V. Burton, Fahd R. Khan, Charles D. Rosen

Learning Objectives: Upon completion, participants will be able to strategize ways to maintain high ethical standards within their neurosurgical practices by analyzing the necessary, major tenets and by recognizing specific clinical scenarios that may jeopardize an ethical neurosurgical practice.

Please visit the Registration Desk to obtain a ticket.

Who will be the next CNS Resident SANS Challenge Champion?

Cheer on your colleagues at the 2011 CNS Resident SANS Challenge as they compete in live rounds and see who will be the next champion!

Preliminary Rounds:

Sunday, October 2

1:00 – 4:00 PM

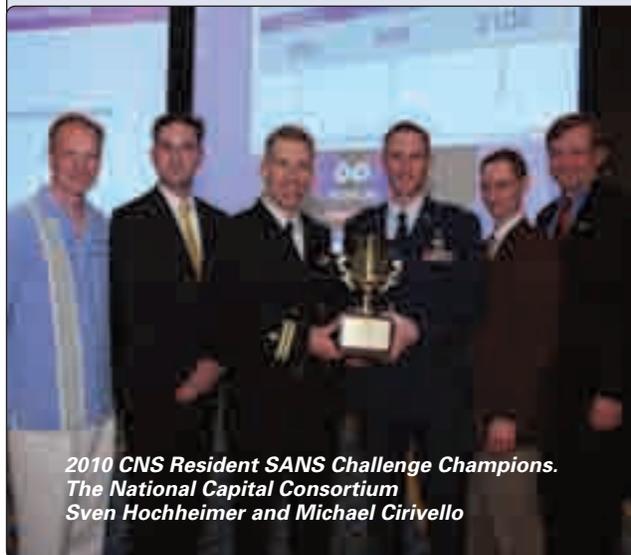
Walter E. Washington
Convention Center
Room 202A

Championship Round:

Tuesday, October 4

5:00 – 6:00 PM

Walter E. Washington
Convention Center
Room 202A



2010 CNS Resident SANS Challenge Champions.
The National Capital Consortium
Sven Hochheimer and Michael Cirivello

Sunday, October 2

TAKE A CLOSER LOOK AT THE LATEST TECHNOLOGY



Get your hands on the latest advances and technological innovations in the field of neurosurgery with these activities in the Exhibit Hall!

CNS Product & Technology Showcase (See Schedule on page 50)

Research & Development Expert Exchange (See Schedule on page 50)

Discuss your concerns and ideas with engineers and product developers from leading companies.

In-Booth Product Demonstrations (See Schedule on page 51)

Wine & Cheese Experience with the CNS Exhibitors

Also available in the exhibit hall:

- ★ Digital Poster Center
- ★ Daily Beverage Breaks
- ★ E-mail Stations

CNS Member Services Booth #1221

Stop by for membership information, world-class publications and demos of the following CNS products!

- ★ *NEUROSURGERY*®
- ★ CNS University
- ★ CNS Job Placement Service (JPS)
- ★ SANS Lifelong Learning
- ★ Simulation Area

Opening Session

4:30 – 6:00 PM Walter E. Washington Convention Center Hall E

Sunday, October 2

Opening Session

Presiding Officer: Daniel K. Resnick

Moderators: Mark E. Linskey, Alan M. Scarrow

Learning Objectives: Upon completion, participants will be able to strategize for the intricacies in neurological surgery by learning about mechanisms used to adapt to the complexities of changing environments, important anatomic relationships as they relate to surgical anatomy and approaches for intracranial surgery, and the latest pathological developments as they relate to neurological surgery.

4:30 – 4:35 PM

Introduction and Disclosures

Daniel K. Resnick

4:35 – 4:53 PM

Striving To Optimize Outcome: The Anatomic Foundation of Neurological Surgery

Albert L. Rhoton, Jr.

4:53 – 4:56 PM

Introduction of Special Lecturer Gerald Imber

Daniel K. Resnick



4:56 – 5:16 PM

Special Lecture

Genius on the Edge: The Bizarre Double Life of Dr. William Stewart Halsted

Gerald Imber

5:16 – 5:18 PM

Introduction of Special Lecturer Peter C. Burger

Ganesh Rao



5:18 – 5:35 PM

Special Lecture

Seeking New Paradigms in Neuropathology – Anatomic, Genetic and Molecular

Peter C. Burger

5:35 – 5:40 PM

Introduction of John Thompson History of Medicine Lecturer General (Ret.) Stanley McChrystal

Rocco A. Armonda



5:40 – 6:00 PM

John Thompson History of
Medicine Lecture

Maintaining Expertise in a Complex and Changing Environment

General (Ret.) Stanley McChrystal

Book
signing

6:00 PM Book Signing with Gerald Imber
Grand Ballroom Foyer, Level 3

CNS OPENING RECEPTION

Sunday, October 2 ★ 6:00 – 8:00 PM

Immediately following the Opening Session, join your colleagues in the Walter E. Washington Convention Center Grand Ballroom for fabulous food, beverages and music.

Each registered attendee will receive one complimentary ticket to the Opening Reception.





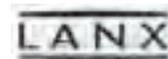
TECHNOLOGICAL ADVANCES IN THE EXHIBIT HALL

THE CNS PRODUCT & TECHNOLOGY SHOWCASE

The Demo Theater located in booth 522 provides a unique forum to learn about the latest products and services!

MONDAY, OCTOBER 3

9:35 – 10:00 AM Lanx, Inc. has invited Dr. Jeffrey Oppenheim to discuss Clinical Applications of the Aspen™ Device



TUESDAY, OCTOBER 4

9:05 – 9:30 AM Nexstim Inc. has invited Dr. Thomas Picht from Charité University Hospital in Berlin to discuss Navigated Brain Stimulation – Optimizing the Surgical Strategy



12:05 – 1:00 PM How to Submit a Paper to *NEUROSURGERY*®
Part I. Elements of Quality Scientific Articles – Nelson M. Oyesiku, MD, Editor-in-Chief
Part II. Evidence-based Manuscripts – Fred Barker, MD, Section Editor
Part III. Submitting Your Manuscript Demonstration – Duncan MacRae, Managing Editor
Part IV. Q&A



RESEARCH & DEVELOPMENT EXPERT EXCHANGE

The following product developers, engineers, and researchers will be available to discuss your concerns and ideas for neurosurgical technology.

11:30 AM – 1:30 PM **Monday, October 3** and **Tuesday, October 4**

Carl Zeiss Meditec, Inc.

1338

Frank Rudolph

ZEISS Neuro Product Manager
Subject/Product: Newest developments in neurosurgical microscopy

Dr. Roland Guckler

ZEISS IOF Product Manager
Subject/Product: Recent advances in intraoperative fluorescence (IOF) imaging

Avi Yaron

CTO, Inventor of VSii 3D Endo-Microscope
Subject/Product: VSii 3D Endo-Microscope

Kelyniam Global, Inc

1005

James Ketner

President, CEO and Chairman
Subject/Product: Custom Cranial Implants Made of PEEK-OPTIMA®

Chris Breault

Operations Director
Subject/Product: Rapid Medical Prototyping Revolutionary Rapid Turnaround

Pro Med Instruments, Inc.

1202

Matthias E. Schuele, MBA

Subject/Product: New Generation Skull Clamp & Navigation Adaptors
Available: Monday, October 3: 11:30AM – 12:30 PM
Tuesday, October 4: 12:30 PM – 1:30 PM

PRODUCT DEMONSTRATIONS

LEVEL 2 – HALL D!

IN-BOOTH DEMONSTRATIONS

Visit these exhibitors at the designated times for in-booth demonstrations of their latest products!

Atlas Spine, Inc. 1407

MIS TLIF Strategies: True Position Spacer System

October 3, 4, 5	9:00 – 10:00 AM, 11:30 AM – 12:00 PM, and 1:30 – 2:00 PM
-----------------	--

Carl Zeiss Meditec, Inc. 1338

Intraoperative fluorescence (INFRARED 800, BLUE 400, YELLOW 560)

October 3	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00 PM
October 4	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00, 4:00, 5:00 PM
October 5	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00 PM

OPMI VARIO 700 surgical microscope

October 3	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00 PM
October 4	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00, 4:00, 5:00 PM
October 5	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00 PM

PENTERO 900 surgical microscope

October 3	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00 PM
October 4	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00, 3:00, 4:00, 5:00 PM
October 5	9:00, 10:00, 11:00 AM and 12:00, 1:00, 2:00 PM

VSii 3D Endo-Microscope

October 3, 4, 5	1:00 PM
-----------------	---------

Elekta 1040

Leksell Gamma Plan 10

October 3	11:30 AM – 2:00 PM
-----------	--------------------

SonoWand Invite

October 4	11:30 AM – 2:00 PM
-----------	--------------------

Leica Microsystems, Inc. 548

Wirelessly transfer/edit surgical videos directly on the Apple® iPad.

October 3	9:00 – 10:00 AM and 1:30 – 2:00 PM
October 4	11:30 AM – 12:00 PM

Techniques/instrumentation used for fluorescence of 5-ALA in GBM tumors.

October 3	11:30 AM – 12:00 PM
October 4	9:00 – 10:00 AM and 1:30 – 2:00 PM

Nexstim, Inc. 1009

Nexstim Navigated Brain Stimulation System (NBS)

October 3	9:00 AM – 3:00 PM
October 4	9:00 AM – 5:00 PM
October 5	9:00 AM – 2:00 PM

Orthofix 831

Spine Fusion Stimulation

October 3	9:00 – 10:00 AM
October 4	9:00 – 10:00 AM and 1:30 – 2:30 PM
October 5	9:00 AM – 10:00 AM

PHOENIX™ Minimally Invasive Spinal Fixation System

October 3	9:00 – 10:00 AM
October 4	9:00 – 10:00 AM and 1:30 – 2:30 PM
October 5	9:00 AM – 10:00 AM

FIREBIRD™ Deformity Correction System

October 3	9:00 – 10:00 AM
October 4	9:00 – 10:00 AM and 1:30 – 2:30 PM
October 5	9:00 AM – 10:00 AM

Biologics, Featuring Trinity® Evolution™ and Collage Osteoconductive Scaffold

October 3	9:00 – 10:00 AM
October 4	9:00 – 10:00 AM and 1:30 – 2:30 PM
October 5	9:00 AM – 10:00 AM

Pro Med Instruments, Inc. 1202

New Generation Skull Clamp

October 3	11:30 AM – 1:30 PM
October 4	11:30 AM to 1:30 PM and 3:30 – 5:00 PM

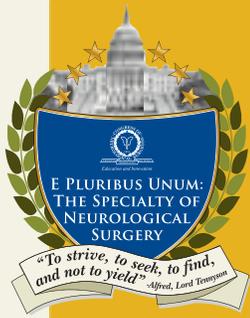
Doro® Quick-Clamp™

October 3	11:30 AM – 1:30 PM
October 4	11:30 AM – 1:30 PM and 3:30 – 5:00 PM

Siemens Healthcare 805

Arcadis Orbic 3D

October 3	9:00 AM – 3:00 PM
October 4	9:00 AM – 5:00 PM
October 5	9:00 AM – 2:00 PM



*“To strive, to seek, to find,
and not to yield”*

-Alfred, Lord Tennyson

Monday, October 3 Program Highlights

- | | |
|-------------------|--|
| 8:15 – 8:35 AM | ★ Translational Neuroscience
<i>Story C. Landis, PhD</i> |
| 9:00 AM – 3:00 PM | ★ Exhibit Hall Open |
| 10:05 – 10:25 AM | ★ Presidential Address
<i>Christopher C. Getch</i> |
| 10:30 – 10:50 AM | ★ Concussion in the NFL
<i>Roger Goodell</i> |
| 10:55 – 11:30 AM | ★ Walter E. Dandy Oration
<i>Jon Meacham</i> |
| 11:30 AM | ★ Book Signing with Jon Meacham in the Exhibit Hall |
| 2:00 – 3:30 PM | ★ Special Course I: Concussion: A Perfect Storm and the Role of the National Football League |
| | ★ Consensus Session I: Treatment of Metastatic Brain Tumors: What Is Standard of Care? |
| 2:00 – 5:00 PM | ★ CNS Original Science Program I <ul style="list-style-type: none">★ Oral Presentations★ Neurosurgical Forum |
| 3:30 – 5:00 PM | ★ The Art of Managing Complex Cranial Cases: A 3-D Video Presentation |

General Scientific Session I

7:00 – 11:30 AM Walter E. Washington Convention Center Hall E

General Scientific Session I

Presiding Officer: Christopher E. Wolfla

Moderators: Ashwini Dayal Sharan, Ganesh Rao

Learning Objectives: Upon completion, participants will be able to incorporate the latest developments in managing intracranial aneurysms, metastatic brain disease, and minimally invasive spine surgery, into their current treatment plans. Participants will also describe the latest efforts by experts to evaluate and treat sport related concussions in all levels of play.

7:00 – 7:05 AM

Introduction and Disclosures

Christopher E. Wolfla

7:05 – 7:22 AM

Unyielding Progress: Giant Aneurysm Management Paradigms

Laligam N. Sekhar

7:22 – 7:39 AM

Striving to Improve Survival: Current Management of Brain Metastases

Raymond Sawaya

7:39 – 7:56 AM

Striving To Define a Surgical Paradigm: Role of Minimally Invasive Spine Surgery in the Thoracic Spine

Richard G. Fessler

7:56 – 8:11 AM

★ CNS RESIDENT AWARD

Jonathan Riley

900 A Phase I Safety Trial for Intraspinal Stem Cell Transplantation in ALS: Assessment of Perioperative Morbidity and Procedural Safety

Jonathan Riley, Thais Federici, Meraida Polack, Eva Feldman, Jonathan Glass, Nicholas M. Boulis

8:11 – 8:15 AM

Introduction of Special Lecturer Story C. Landis

Christopher E. Wolfla.



8:15 – 8:35 AM
Special Lecture
Translational Neuroscience
Story C. Landis, PhD

8:35 – 8:40 AM

Introduction of Honored Guest H. Hunt Batjer

Ralph G. Dacey



8:40 – 9:00 AM
Honored Guest Lecture
3-D Red Cerebral Veins – The Science, The Art, and The Craft
H. Hunt Batjer

9:00 – 10:00 AM

Beverage Break with Exhibitors

10:00 – 10:05 AM

Introduction of CNS President Christopher C. Getch

Douglas Kondziolka



10:05 – 10:25 AM
CNS President
Presidential Address
Christopher C. Getch

10:25 – 10:30 AM

Introduction of Special Lecturer Roger Goodell

Richard G. Ellenbogen, H. Hunt Batjer



10:30 – 10:50 AM
Special Lecture
Concussion in the NFL
Roger Goodell

10:50 – 10:55 AM

Introduction of Walter E. Dandy Orator Jon Meacham

Russell R. Lonser



10:55 – 11:30 AM
Walter E. Dandy Oration
Leadership in a Time of Crisis
Jon Meacham

11:30 AM – 12:00 PM
Break with Exhibitors



11:30 AM Book Signing with Jon Meacham in the Exhibit Hall, Booth 1221!

Monday, October 3

LUNCHEON SEMINARS

12:00 – 1:30 PM

All Luncheon Seminars include a plated lunch served in the seminar room. Luncheon Seminar fees are \$75 each (\$60 for Residents/Fellows/Medical Students/Nurses/Physician Extenders).

M01 Room 145A
Resident/Honored Guest Luncheon – Your Career in Neurosurgery: Pathways to Success and Failure
Complimentary for CNS Resident Members!
Moderator: Catherine A. Mazzola
Faculty: H. Hunt Batjer
Learning Objectives: Participants and the CNS Honored Guest will review and discuss challenges and changes in neurosurgical education, career development and lifelong learning. Upon completion, participants will be able to identify successful career development and professional strategies, and utilize these methods to enhance their own training and lifelong learning.

M02 Room 140A
Current Management Strategies for Craniosynostosis
Moderator: Robert F. Keating
Faculty: James T. Goodrich, Jose Hinojosa, David F. Jimenez, Mark R. Proctor
Learning Objectives: Upon completion, participants will be able to discuss various forms of syndromic and non-syndromic cranial synostosis and add various techniques available for repair of craniosynostosis to their management strategies.

M03 Room 146A
Disc Replacement in the Cervical and Lumbar Spine
Moderator: Regis W. Haid
Faculty: Peter D. Angevine, Wayne Gluf, Carl Laurysen, Luis M. Tumialan
Learning Objectives: Upon completion, participants will be able to discuss the state-of-the-art cervical and lumbar disc arthroplasty technology and discuss its indications for use.

M04 Room 146B
Nuances of Minimally Invasive Spine Surgery
Moderator: Richard G. Fessler
Faculty: Avelino Parajon, Luiz Pimenta, Faheem A. Sandhu, Jean-Paul Wolinsky
Learning Objectives: Upon completion, participants will be able to discuss the current indications, plan techniques appropriate for minimally invasive spinal surgery and describe the expected outcomes and complications associated with these techniques.

M05 Room 146C
Pseudoarthrosis of the Cervical and Lumbar Spine
Moderator: William Charles Welch
Faculty: Anthony J. Caputy, Michael G. Kaiser, Gregory R. Trost, Timothy R. Witham
Learning Objectives: Upon completion, participants will be able to identify the appropriate imaging modalities to accurately diagnosis a pseudoarthrosis of either the cervical or lumbar spine and incorporate management strategies to increase the potential for successful clinical outcome by considering the results and potential complications of current salvage techniques.

M06 Room 147A
Multidisciplinary Management of Subarachnoid Hemorrhage and Vasospasm
Moderator: R. Loch Macdonald
Faculty: Adam S. Arthur, Kevin M. Cockroft, Luis Ley, Robert H. Rosenwasser
Learning Objectives: Upon completion, participants will be able to compare the current surgical, interventional and medical management of subarachnoid hemorrhage and vasospasm secondary to ruptured intracranial aneurysms and vascular malformations.

M07 Room 147B
Hematology and Coagulation for Neurosurgeons: Dangers and Solutions
Moderator: Issam A. Awad
Faculty: Edward A.M. Duckworth, Michael T. Lawton, Maciej S. Lesniak, Alex B. Valadka
Learning Objectives: Neurosurgeons commonly face acute peri- and intraoperative decisions regarding the diagnosis and management of coagulopathy that are crucial to patient safety and excellent outcomes. Upon completion, participants will review 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.

M08 Room 140B
Incorporating Psychosurgery into Your Neurosurgical Practice
Moderator: Rees Cosgrove
Faculty: Giovanni Broggi, Emad N. Eskandar, Kelly D. Foote, Robert E. Gross, Brian H. Kopell
Learning Objectives: Upon completion, participants will be able to incorporate the latest developments in the neurosurgical treatment of psychiatric disorders and knowledge of indications for surgical treatment of these disorders and common psychiatric disorders amenable to surgical intervention into practice plans.

M09 Room 143A
Hemorrhagic and Ischemic Stroke Update for Allied Health Professionals

Moderator: Erol Veznedaroglu

Faculty: Ricardo A. Hanel, Brian Lim Hoh, Christopher S. Ogilvy, Adnan Hussain Siddiqui

Learning Objectives: Upon completion, participants will be able to discuss surgical and interventional advances in the management of acute hemorrhagic and ischemic stroke. Participants will also be able to update treatment plans with current treatment paradigms for acute hemorrhagic and ischemic stroke in patients.

Nursing contact hours may be provided through AANN. The American Association of Neuroscience Nurses is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. Physician assistants will receive credit for attendance. Each physician assistant will need to contact his or her individual membership association and certification board to determine the requirements for accepting credits. All attendees will receive a confirmation of attendance. No CMEs will be awarded to physician participants.

M10 Room 145B
Tumor Resection in High-Risk Locations: Techniques to Minimize Collateral Damage **NEW**

Moderator: Frederick F. Lang

Faculty: Mitchel S. Berger, Gerardo Conesa, Linda M. Liao, Michael Schulder

Learning Objectives: Upon completion, participants will be able to improve their current techniques by identifying the unique anatomic and functional considerations required for surgical resection of tumors in eloquent cortex, the utility of adjunctive tools in preparing for surgery in eloquent cortex and the indications for surgery for tumors in eloquent cortex.

M11 Room 143B
Staying Current in Vestibular Schwannoma Management

Moderator: Franco DeMonte

Faculty: Johnny B. Delashaw, Douglas Kondziolka, Andrew T. Parsa, Enrique Urculo

Learning Objectives: Upon completion, participants will be able to update management strategies by identifying the surgical and radiosurgical indications for managing vestibular schwannomas, and recognizing anatomic considerations during surgery and advantages/limitations of various treatments.

M12 Room 143C
Augmenting Skull Base Approaches with Endoscopy

Moderator: Charles Teo

Faculty: William T. Couldwell, Juan Carlos Fernandez-Miranda, Costas G. Hadjipanayis, Bartolome Oliver

Learning Objectives: Upon completion, participants will be able to plan various approaches and identify current indications and risks of endoscopy for intraventricular and skull base surgery.

M13 Room 144A
Innovations in the Management of Pediatric Neurotrauma

Moderator: Ann-Christine Duhaime

Faculty: Shenandoah Robinson, Phillip B. Storm, Roland A. Torres

Learning Objectives: Upon completion, participants will be able to incorporate the latest advancements in pediatric neurotrauma research, emerging technologies being developed for managing pediatric brain injury and latest surgical techniques available for treating pediatric brain injury into their management strategies.

M14 Room 144B
Peripheral Nerve Board Review

Moderator: Lynda J.S. Yang

Faculty: Allan J. Belzberg, Allen H. Maniker, Rajiv Midha, Robert J. Spinner

Learning Objectives: Upon completion, participants will be able to address the important peripheral nerve injuries frequently presented on board examinations, demonstrate comprehension of the peripheral nerve physical examination and explain how to manage peripheral nerve injury/disease surgically and non-surgically.

M15 Room 144C
Surgical, Interventional and Radiosurgical Approaches to Intracranial Arteriovenous Malformations

Moderator: Bernard R. Bendok

Faculty: Daniel L. Barrow, Francisco Gonzalez-Llanos, Howard A. Riina

Learning Objectives: Upon completion, participants will be able to account for the natural history of arteriovenous malformations of the brain and the relative merits and limitations of radiosurgery, microsurgery and embolization for treatment of this disease when planning treatment strategies.

M16 Room 149AB
Should You Become Employed by a Hospital? There Are Alternatives. How To Negotiate Your Future **NEW**

Moderator: James I. Ausman

Faculty: Gregory B. Lanford, Troy D. Payner, Khalid A. Sethi, K. Michael Webb

Learning Objectives: Participants will be able to discuss the advantages and disadvantages of becoming hospital employees. Participants will be able to demonstrate the factors associated with successful negotiations with hospital administrators to maximize satisfaction with their practice.

Pioneering Research and Clinical Developments



Meet the Authors During the Original Science Program

Interact with authors of the best clinical and basic science of 2011 in this neurosurgical marketplace of ideas.

Monday, October 3, 2:00 – 5:00 PM,

- ★ **ORAL PRESENTATIONS** deliver the highest-ranked abstracts from each neurosurgical subspecialty. *Level Two Meeting Rooms*
- ★ **NEUROSURGICAL FORUM** authors make dynamic oral presentations to small groups in one interdisciplinary session. *East Registration*

Wednesday, October 5, 2:00 – 3:30 PM

- ★ **NEW MULTIDISCIPLINARY ORAL PRESENTATION** delivers the highest-ranked original science that crosses neurosurgical subspecialties. *Room 151B*

All abstracts will also be on display in the Digital Poster Center in the Exhibit Hall during open Exhibit Hall Hours:

Monday:	9:00 AM – 3:00 PM
Tuesday:	9:00 AM – 5:00 PM
Wednesday:	9:00 AM – 2:00 PM



ORIGINAL SCIENCE PROGRAM

Oral Presentations and the Neurosurgical Forum

Upon completion, participants will be able to discuss the findings of novel neurosurgical studies, critique the design and methodology of these studies, list important areas for further knowledge development and research and identify the most important ongoing clinical trials.

Oral Presentations

2:00 – 3:30 PM
Room 204A

Council of State Neurosurgical Societies

Moderators: Catherine A. Mazzola, Michael P. Steinmetz

★ SAM HASSENBUSCH YOUNG NEUROSURGEON AWARD

2:00 – 2:09 PM

901

Helmeted vs. Non-helmeted Patients: A Retrospective Review of Outcomes at a Level One Trauma Center

Kristopher Gray Hooten, Gregory J. Murad

★ JULIUS GOODMAN RESIDENT AWARD

2:09 – 2:18 PM

902

Results of a National Neurosurgery Resident Survey on Duty Hour Regulations

Kyle Michael Fargen, Mishti Chakraborty, William A. Friedman

2:18 – 2:27 PM

903

Increased Morbidity in Teaching Hospitals After Introduction of the ACGME Work-hour Restriction After Elective Craniotomy for Meningioma

Travis Michael Dumont, Anand Indulal Rughani

2:27 – 2:36 PM

904

Socioeconomic Implications of Clipping or Coiling Small Unruptured Intracranial Aneurysms: Age-Stratified Risk Curves, Length of Stay, and Total Charges Calculated from 14,050 Patients in the Nationwide Inpatient Sample Database

Matthew F. Lawson, Dan Neal, J D. Mocco, Brian Lim Hoh

2:36 – 2:45 PM

905

Effects of a Structured Competency-Based Curriculum, Mobile, and Digital Resources in Neurosurgery Residency Education

Nestor R. Gonzalez, Neil A. Martin

2:45 – 2:54 PM

906

The Effect of Centralization of Caseload for Primary Brain Tumor Surgeries: Updated Trends from 2001-2007

Miriam Nuno, Debraj Mukherjee, Christine Carico, Chirag G. Patil

2:54 – 3:03 PM

907

The Impact of Insurance Status on the Outcomes After Surgery for Acute Spinal Cord Injury

Hormuzdiyar H. Dasenbrock, Timothy F. Witham, Ziya L. Gokaslan, Ali Bydon

3:03 – 3:12 PM

908

The Effect of Fatigue on Cognitive Ability and Psychomotor Skill in Neurology and Neurological Surgery Residents

Aruna Ganju, Tanya Simuni, Andrew Ketterer, Ross Malik, Kanav Kahol, Peter Lee, Narina Simonian, Steven Quinn, H. Hunt Batjer

3:12 – 3:21 PM

909

The Fate of Abstracts Presented at the Annual Congress of Neurological Surgeons: Publication Rates and Factors Predictive of Success

Cameron Elliott, Vivek Mehta, Candice Poon, Monika Oliver, Sita Gourishankar

3:21 – 3:30 PM

910

What Is the Minimum Improvement in Pain, Disability, and Quality of Life That Is Associated with Cost-effectiveness: Introduction of the Concept of Minimum Cost Effective Difference (MCED)

Scott L. Parker, Owoicho Adogwa, David Shau, Stephen Mendenhall, Clinton J. Devin, Matthew McGirt

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Council of State Neurosurgical Societies

Moderators: Catherine A. Mazzola, Michael P. Steinmetz

1

In-training Factors Predictive of a Sustained Productive Academic Career Path in Neurological Surgery

R. Webster Crowley, Ashok Rajappa Asthagiri, Robert M. Starke, Edie E. Zusman, E. Antonio Chiocca, Russell R. Lonser

2

Prevention of Deep Vein Thrombosis in Neurological Surgery: Results From a Survey on 1100 Patients Undergoing Elective Intradural Cranial Procedures. A Multitool Prophylaxis Protocol

Mario Ganau, Leonello Tacconi

3

Addressing the Costs Associated with Seizure Prophylaxis Beyond a 7-Day Period in Patients with Traumatic Brain Injury

Joshua E. Medow, Christopher Nickle, Daniel K. Resnick, Christopher Doede, Carin Bouchard, Lisa Vanevenhoven

4

Neurosurgeons and Ownership of Innovation at Academic Institutions

Maya A. Babu, Brian V. Nahed

Stay connected at <http://m.cns.org>

57

Monday, October 3

ORIGINAL SCIENCE PROGRAM

5

The Cost of Preventable External Ventricular Drain Replacement Procedures

Scott Brian Phillips, David Nerenz, Kost Elisevich, Satish Krishnamurthy

6

Effect of Brain Tumor Clinical Trial Center Designation on Inpatient Outcomes After Brain Tumor Surgery for Malignant Tumors

Debraj Mukherjee, Miriam Nuno, Christine Carico, Chirag G. Patil

7

Current Exposure to Neurosurgery and Neurosurgical Concepts in Medical School Curriculums

Julie G. Pilitsis, Catherine A. Mazzola, Sandra Beverly, Kaveh Asadi-Moghaddam, Chaim B. Colen, William W. Ashley, Michael P. Steinmetz

8

Time-trend Analysis of Patient Transfers to a Neurosurgical Service at a Tertiary Care Facility in the Southeastern United States

David LaBorde, Jaskaran Rakkar, Nathaniel Bloodworth

9

Tele-Medicine Using FaceTime via Apple iPod Touch Devices in Uganda

Eric C. Chang, Brian V. Nahed, Vanessa B. Kerry

10

Analysis of Resident Work Force Strategies to Accommodate the July 1, 2011 ACGME Resident Duty Hour Standards

Brian T. Ragel, Nathan R. Selden, Mark P. Piedra

Oral Presentations

2:00 – 3:30 PM

Room 202A

Section on Cerebrovascular Surgery

Moderators: Nicholas Bambakidis, Adnan Hussain Siddiqui

2:00 – 2:09 PM

911

Follow-Up Angiography In Subarachnoid Hemorrhage With Negative Initial Angiography

Richard Dalyai, Thana Theofanis, Kunal Vakharia, George M. Ghobrial, Aaron S. Dumont, Pascal Jabbour, L. Fernando Gonzalez, Robert H. Rosenwasser, Stavropoula I. Tjoumakaris

★ **GALBRAITH AWARD**

2:09 – 2:18 PM

912

Carotid Recanalization in Non-Acute Internal Carotid Artery Occlusion: A Therapeutic Option for Ischemic Stroke

Leopoldo Guimaraens, Hugo Cuellar, Teresa Sola, Elio Vivas, Alfredo Casasco, Prashant Chittiboina, Anil Nanda, Jacques Theron

★ **SYNTHES CEREBROVASCULAR AWARD**

2:18 – 2:27 PM

913

Treatment Benefit of Clipping or Coiling Small Unruptured Intracranial Aneurysms: Age-Stratified Risk Curves Calculated from 14,050 Patients in the Nationwide Inpatient Sample Database

Matthew F. Lawson, Dan Neal, J.D. Mocco, Brian Lim Hoh

2:27 – 2:36 PM

914

Cerebral Revascularization for Complex Intracranial Aneurysms: Indications, Techniques, and Results in 102 Cases

Eric S. Nussbaum, Tariq Janjua, Archie Defillo, Leslie A. Nussbaum

2:36 – 2:45 PM

915

Mid-term Anatomical Results After Endovascular Treatment of Ruptured Intracranial Aneurysms with GDC™ and Matrix™ Coils: Analysis of the CLARITY Series

Laurent Pierot, Christophe Cognard, Frédéric Ricolfi, René Anxionnat, CLARITY Investigators

2:45 – 2:54 PM

916

Impact of Changes in Intraoperative Somato-sensory Evoked Potentials (SSEPs) on Stroke Rates After Clipping of Intracranial Aneurysms

Robert Thomas Wicks, Gustavo Pradilla, Shaan Mohammed Raza, Uri Hadelsburg, Judy Huang, Rafael J. Tamargo

2:54 – 3:03 PM

917

Feasibility, Safety, and Periprocedural Complications Associated with Endovascular Treatment of Ruptured Aneurysms Under Conscious Sedation and Local Anesthesia

Peter Kan, Elad I. Levy, Adnan Hussain Siddiqui, L. Nelson Hopkins, III, Sharon W. Webb, Parham Yashar, Shady Jahshan, David Orion

3:03 – 3:12 PM

918

Prospective Volume Staged Stereotactic Radiosurgery for Large Arteriovenous Malformations

Hideyuki Kano, Douglas Kondziolka, Kyung-Jae Park, Phillip Parry, Huai-Che Yang, Sait Sirin, Ajay Niranjana, Josef Novotny, John Flickinger, L. Dade Lunsford

3:12 – 3:21 PM

919

30 Years Treatment Experience of Moyamoya Disease in a Single Institute: Long-term Follow-up of Surgically or Medically Treated Cases

Tadashi Nariai, Maki Mukawa, Yoji Tanaka, Motoki Inaji, Masaru Aoyagi, Yoshiharu Matsushima, Kikuo Ohno

3:21 – 3:30 PM

920

Effect of Clazosentan on Clinical Outcome After Aneurysmal Subarachnoid Hemorrhage and Surgical Clipping: Results of the CONSCIOUS-2 Study

R. Loch Macdonald

ORIGINAL SCIENCE PROGRAM

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Cerebrovascular Surgery

Moderators: *Nicholas Bambakidis, Adnan Hussain Siddiqui*

11
Simulated Diagnostic Cerebral Angiography in Neurosurgical Training: A Pilot Program

Alejandro M. Spiotta, Peter A. Rasmussen, Thomas J. Masaryk, Edward C. Benzel, Richard P. Schlenk

12
Is Packing Density Important In Stent-Assisted Coiling?

Hayan Dayoub, Stavropoula I. Tjoumakaris, L. Fernando Gonzalez, Aaron S. Dumont, Robert H. Rosenwasser, Pascal Jabbour

13
National Trends in Carotid Artery Revascularization 1998 – 2008

Travis Michael Dumont, Anand Indulal Rughani

14
Monocyte Chemotactic Protein-1 (MCP-1) Promotes Inflammatory Vascular Repair of Aneurysms via a Macrophage Inflammatory Protein-1 \pm (MIP-1 α) and Macrophage Inflammatory Protein-2 (MIP-2)-Dependent Pathway

Brian Lim Hoh, Koji Hosaka, Daniel Downes, Kamil Nowicki, Christina Fernandez, Christopher Batich, Edward W. Scott

15
Efficacy of Self-Expendable Porus Stent as Sole Curative Treatment for Extracranial Carotid Pseudoaneurysms

Peng R. Chen, Arthur L. Day

16
Withdrawn

17
Complement Factor H Polymorphism Independently Predicts Mortality After Intracerebral Hemorrhage

Matthew Piazza, Geoffrey Appelboom, Brian Y. Hwang, Samuel S. Bruce, Amanda M. Carpenter, Emilia Bagiella, Stephan A. Mayer, E. Sander Connolly, Jr.

18
Endovascular Treatment of Proximal Internal Carotid Artery Occlusion and Tandem Middle Cerebral Artery Occlusion In Acute Ischemic Stroke

Richard Dalyai, Vismay Thakkar, Pascal Jabbour, Saurbh Singhal, George M. Ghobrial, L. Fernando Gonzalez, Aaron S. Dumont, Robert H. Rosenwasser, Stavropoula I. Tjoumakaris

19
ICAM-1 and VCAM-1 Expression in Haptoglobin 2-2 Mice After Subarachnoid Hemorrhage (SAH)

Tomas Garzon-Muvdi, Gustavo Pradilla, Robert Thomas Wicks, Lindsay Edwards, Jacob Ruzevick, Matthew Bender, Rafael J. Tamargo

20
The Myth of Restenosis After Carotid Artery Stenting
Azam S. Ahmed, Felipe Albuquerque, Alim P. Mitha, Cameron G. McDougall

21
Does the Size Ratio Indicate a Ruptured Intracranial Aneurysm?
Achal Patel, Svetlana Pravdenkova, Ali F. Krisht

22
Outcomes in Posterior Circulation Bypass Procedures: A Review of 28 Cases

Michael J. Alexander, Armen Choulakian, Abhineet Chowdhary, Wouter I. Schievink

23
Multimodality Management of Spetzler-Martin Grade III Arteriovenous Malformations

Paritosh Pandey, Ciara D. Harraher, Erick Michael Westbroeck, Michael P. Marks, Gary K. Steinberg

24
Size Ratio Is a Poor Discriminant of Rupture Status Prone to Aneurysm-Type Distribution Bias

Alex Lauric, Merih I. Baharoglu, Adel M. Malek

25
Parent Vessel Size and Curvature Strongly Influence Risk of Incomplete Stent Apposition in Enterprise Intracranial Aneurysm Stent-Coiling

Robert Heller, Adel M. Malek

26
Accuracy of Computed Tomographic Angiography in the Diagnosis of Intracranial Aneurysms

Gustavo Pradilla, Robert Thomas Wicks, Uri Hadelburg, Rafael J. Tamargo

27
Doppler Flow Wires in Cerebral Angiography

Michael Robert Levitt, Sandeep S. Vaidya, Basavaraj Ghodke, Danial K. Hallam, Laligam N. Sekhar, Louis J. Kim

28
Neurologic Sequelae of Hereditary Hemorrhagic Telangiectasia: The Georgia Health Sciences University Experience

M. Neil Woodall, Melissa McGettigan, Ramon Figuaroa, Jim Gossage, Cargill H. Alleyne, Jr.

29
Intra-arterial Colforsin May Improve the Outcome of Patients with Aneurysmal Subarachnoid Hemorrhage: A Retrospective Study

Satoshi Suzuki, Michiyoshi Sato, Shinzo Ota, Tomoko Fukushima, Akiko Ota, Taisei Ota, Katsuya Goto

30
Microparticle Elevation Following Subarachnoid Hemorrhage
Matthew Robert Sanborn, Stephen Thom, Leif-Erik Bohman, Tatyana Milavanova, Monisha Kumar

Monday, October 3

ORIGINAL SCIENCE PROGRAM

31

Treatment and Outcomes of Acute Vertebrobasilar Artery Occlusion: One Institution's Experience*Sharon W. Webb, Parham Yashar, Peter Kan*

32

Surgical and Endovascular Treatment of Pediatric Spinal Arteriovenous Malformations*M. Yashar S. Kalani, Azam S. Ahmed, Nikolay L. Martirosyan, Samuel Kalb, Katharine M. Cronk, Karam Moon, Cameron G. McDougall, Felipe Albuquerque, Robert F. Spetzler, Ruth E. Bristol*

33

Surgical Revascularization in North American Adults with Moyamoya Phenomenon: Long-term Angiographic Follow-up*Eric J. Arias, Gavin Peter Dunn, Timothy M. Murphy, Colin Derdeyn, Daniel Refai, Michael R. Chicoine, Robert L. Grubb, Jr., Christopher J. Moran, DeWitte T. Cross, Ralph G. Dacey, Jr., Gregory J. Zipfel*

34

Brain Endothelial Expression of Notch Pathway Proteins in Human Brain Arteriovenous Malformations*Sandra J. Hill-Felberg, Hope H. Wu, Steven A. Toms, Amir R. Dehdashti*

35

Fundamentals of Angiography Instruction: Results of a Simulator-Based Pilot Study of Neurosurgical Residents*Kyle Michael Fargen, Adnan Hussain Siddiqui, Erol Veznedaroglu, Raymond D. Turner, IV, Andrew J. Ringer, J D. Mocco*

36

Temporary Endovascular Bypass: Rescue Technique During Mechanical Thrombolysis*Sonia Teufack, L. Fernando Gonzalez, Pascal Jabbour, Stavropoula I. Tjoumakaris, David S. Gordon, Aaron S. Dumont, Robert H. Rosenwasser*

37

The Impact of Temporary Artery Occlusion During Intracranial Aneurysm Surgery in Subarachnoid Hemorrhage Patients*Christoph Johannes Griessenauer, Tyler L. Poston, Martin M. Mortazavi, Michael Falola, Chevis N. Shannon, Winfield S. Fisher, III*

38

Does Temporary Artery Occlusion Time Effect Long Term Clinical Outcome of Elective Intracranial Aneurysm Clipping Patients?*Tyler L. Poston, Christoph Johannes Griessenauer, Martin M. Mortazavi, Michael Falola, Chevis N. Shannon, Winfield S. Fisher, III*

39

Minority Inequities in Stroke: Severity Related to Race and Socioeconomic Status*Gabrielle Navon, Roberta P. Glick, Heidi Beckstrom, Valerie Carter, Mir Yadhullahi*

40

Withdrawn

41

Withdrawn

42

Practical Clinical Use of DSC-MRI for Surgical Treatment of Moyamoya Disease*Yosuke Ishii, Tadashi Nariai, Yoji Tanaka, Maki Mukawa, Motoki Inaji, Kikuo Ohno*

43

Unilateral Craniotomy for Bilateral Aneurysms*Kranthi Kumar Sunnepaneni, Praveen Ankathi, Barada Prasad Sahu, Aniruddha Kumar Purohit, Rajesh Alagolu*

44

Carotid Artery Angioplasty and Stenting for Patients Less than 70 Years of Age*Ryan David Alkins, Charles Matouk, Juan P. Cruz, Tom R. Marotta, Walter Montanera, Julian Spears*

45

Calcitonin Gene-related Peptid (CGRP) Expression in Hp2-2 Mice After Subarachnoid Hemorrhage (SAH) in Intracranial Structures*Tomas Garzon-Muvdi, Gustavo Pradilla, Robert Thomas Wicks, Jacob Ruzevick, Lindsay Edwards, Matthew Bender, Juan A. Mejia, Rafael J. Tamargo*

46

Visual Complications Following Stent Assisted Endovascular Embolization of Paraophthalmic and Suprasellar Variant Superior Hypophyseal Ophthalmic Segment ICA Aneurysms: The Duke Cerebrovascular Center Experience in 57 Patients*Andrew S. Ferrell, Mark L. Lessne, Michael J. Alexander, Pratish Shah, Kiarash Golshani, Ali R. Zomorodi, Tony P. Smith, Gavin W. Britz*

47

The Effect of Telemedicine on Stroke Outcome in the Delaware Valley*Pascal Jabbour, Stavropoula I. Tjoumakaris, L. Fernando Gonzalez, Aaron S. Dumont, Robert H. Rosenwasser*

48

Prokineticin 2 Is a Novel Mediator of Cerebral Ischemic Injury*Michelle Cheng, Alex G. Lee, Collin Culbertson, GuoHua Sun, Nathan C. Manley, Heng Zhao, David M. Lyons, Qun-Yong Zhou, Gary K. Steinberg, Robert M. Sapolsky*

49

Comparison of Techniques for Stent-assisted Coil Embolization of Aneurysms*Alejandro M. Spiotta, Anne-Marie Wheeler, Saksith Smithason, Ferdinand Hui, Shaye I. Moskowitz*

50

Use of Precise CO₂ Manipulation and Transcranial Doppler in the Assessment of Cerebral Autoregulation After Aneurysmal Subarachnoid Hemorrhage

Leodante B. da Costa, Jr, Jorn Fierstra, David Houlden, Michael Schwartz, Joseph A. Fisher

51

Necrostatin-1 Promotes Hematoma Resolution and Attenuates Cerebral Edema Following Intracerebral Hemorrhage

Cargill H. Alleyne, Jr., Melanie King, Krishnan M. Dhandapani

52

Establishment of Dedicated Neuro-ICU Reduces Mortality in Aneurysmal Subarachnoid Hemorrhage

Michael J. Alexander, David Palestrant, Chad Miller, Asma Moheet, Wouter I. Schievink

53

Oral Contraceptive and Hormone Replacement Therapy Use in Women with Intracerebral Aneurysms

Lisa Anne Feldman, John F. Reavey-Cantwell, Scott Douglas Simon, Michael Chen

54

Dural AV Fistulas with Intracranial Hemorrhage: Diagnostic and Therapeutic Implications

Ghaus M. Malik

55

Aneurysmal Subarachnoid Hemorrhage with Intraventricular Blood: A Strong Predictor of Hydrocephalus and the Need for Shunting

Ali F. Krisht, Svetlana Pravdenkova

56

Improving Delivery of Stroke Care Across Institutions Within a Health System: A Work in Progress

Richard D. Fessler, Carrie Stover, Vickie Gordon, Bruce Silverman, Paul Cullis

57

Aneurysm Embolization Grade: A Predictive Tool To Determine Treatment Success and Risk for Recurrence After Coil Embolization of Intracranial Aneurysms

Walter P. Jacobsen, Eric M. Deshaies, Amit Singla

58

Quantitative Xenon CT Helps Identify Moyamoya Patients at Risk for Major Ischemic Stroke After EC-IC Bypass

Terry Burns, Thomas Pulling, Greg Zaharchuk, Gary K. Steinberg

59

Multimodality Treatment of Arteriovenous Malformations (AVMs) of Basal Ganglia and Thalamus: Factors Affecting Outcome and Obliteration

Paritosh Pandey, Ciara D. Harraher, Steven D. Chang, John Adler, Huy M. Do, Richard Levy, Michael P. Marks, Gary K. Steinberg

Oral Presentations

2:00 – 3:30 PM

Room 202B

Section on Disorders of the Spine and Peripheral Nerves

Moderators: *D. Kojo Hamilton, Adam S. Kanter*

2:00 – 2:09 PM

921

Early vs. Delayed Surgical Decompression for Traumatic Cervical Spinal Cord Injury: Results of the Surgical Trial in Acute Spinal Cord Injury Study (STASCIS)

Michael G. Fehlings, Alexander R. Vaccaro, Jefferson Wilson, David W. Cadotte, James S. Harrop, Christopher I. Shaffrey, Bizhan Aarabi, Marcel Dvorak, Eric M. Massicotte, Charles Fisher, Stephen Lewis, Raja Y. Rampersaud, Anoushka Singh, Paul M. Arnold

2:09 – 2:18 PM

922

Impact of Early and Late Complications on Patient Outcomes Following Surgical Treatment of Cervical Spondylotic Myelopathy Based on a Prospective Multicenter Study: The AOSpine North America CSM Study

Michael G. Fehlings, Justin S. Smith, Christopher I. Shaffrey, Branko Kopjar, Paul M. Arnold, Sangwook Yoon, Alexander R. Vaccaro, Darrel S. Brodke, Michael Janssen, Jens Chapman, Rick Sasso, Eric J. Woodard, Robert J. Banco, Eric M. Massicotte, Mark B. Dekutoski, Ziya L. Gokaslan, Christopher Bono

2:18 – 2:27 PM

923

International Variations in the Clinical Presentation and Management of Cervical Spondylotic Myelopathy (CSM). One Year Outcomes of the AOSpine Multi-Center Prospective Study

Michael G. Fehlings, Branko Kopjar, Helton Defino, Shashank Sharad Kale, Guiseppe Barbagallo, Ronald H.M.A. Bartels, Qiang Zhou, Paul M. Arnold, Mehmet Zileli, Gamaliel Tan, Yasutsugu Yukawa, Osmar Moraes, Manuel Alvarado, Massimo Scerrati, Tomoaki Toyone, Ciaran Bolger

2:27 – 2:36 PM

924

Over Correction by Osteotomy for Sagittal Plane Deformity: It Happens and Here is Why

Justin S. Smith, Benjamin Blondel, Frank Schwab, Shay Bess, Christopher P. Ames, Robert Hart, Christopher I. Shaffrey, Douglas C. Burton, Oheneba Boachie-Adjei, International Spine Study Group, Virginie Lafage

2:36 – 2:45 PM

925

Revision Instrumented Fusion Improves Two-year Pain, Disability, and Quality of Life in Patients with Lumbar Pseudoarthrosis: Defining the Long-term Effectiveness of Surgery

Owoicho Adogwa, Scott L. Parker, David Shau, Stephen Mendenhall, Clinton J. Devin, Joseph S. Cheng, Matthew McGirt

ORIGINAL SCIENCE PROGRAM

2:45 – 2:54 PM

926

The Biomechanical Consequences of Rod Reduction on Pedicle Screws: Should it Be Avoided?

Haines Paik, Daniel Gene Kang, Ronald A. Lehman, Anton E. Dmitriev, Rachel Gaume, Divya Ambati

2:54 – 3:03 PM

927

Meta-analysis of Fusion Rates for Minimally Invasive Transforaminal Lumbar Interbody Fusion Performed Without Posterolateral Bone Grafting

Daniel Gene Kang, David Gwinn, Ronald A. Lehman

3:03 – 3:12 PM

928

5 Year Reoperation Rates: Cervical Total Disc Replacement vs Fusion. Results of a Prospective, Randomized Clinical Trial

Rick B. Delamarter, Daniel B. Murrey, Michael Janssen, Jack E. Zigler

3:12 – 3:21 PM

929

Failure of Porous Tantalum Cervical Interbody Fusion Devices: Two-Year Results from a Prospective, Randomized, Multi-Center, Clinical Study

Manish K. Kasliwal, David Baskins, Vincent C. Traynelis

3:21 – 3:30 PM

930

Assessment of Symptomatic Rod Fracture Following Posterior Instrumented Fusion for Adult Spinal Deformity

Justin S. Smith, Christopher I. Shaffrey, Christopher P. Ames, Vedat Deviren, Kai-Ming G. Fu, Frank Schwab, Virginie Lafage, Shay Bess, International Spine Study Group

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Disorders of the Spine and Peripheral Nerves

Moderators: D. Kojo Hamilton, Adam S. Kanter

60

Crescent Sign on Magnetic Resonance Angiography Denotes Incomplete Stent Apposition and Correlates with Diffusion-Weighted Changes in Aneurysm Stent-Coiling

Robert Heller, William R. Miele, Daniel Do-dai, Adel M. Malek

61

Predictors of Success in the Surgical Treatment for Cervical Spondylotic Myelopathy: Analysis of the AOSpine North America Multi-Center Prospective Study in 260 Subjects

Michael G. Fehlings, Branko Kopjar, Sangwook Yoon, Paul M. Arnold, Eric M. Massicotte, Alexander R. Vaccaro, Darrel S. Brodke, Christopher I. Shaffrey, Eric J. Woodard, Robert J. Banco, Jens Chapman, Michael Janssen, Rick Sasso, Christopher Bono, Mark B. Dekutoski, Ziya L. Gokaslan

62

Radiographic and Clinical Outcomes of Posterior Column Osteotomies in Spinal Deformity Correction: Analysis of 128 Patients

Ian G. Dorward, Lawrence Lenke, Woojin Cho, Linda A. Koester, Brenda A. Sides

63

Does Plating Improve Anterior Lumbar Interbody Fusion Clinical Outcomes?

Laura Ann Snyder, Samuel Kalb, Udaya K. Kakarla, Nicholas Theodore

64

Withdrawn

65

A Preliminary Analysis of Outcomes, and Direct Cost for Four Diagnostic Categories of Adult Spinal Deformity (ASD)

Christopher P. Ames, Sigurd Berven, Richard A. Hostin, Neil Fleming, Gerald Ogola, Rustam Kudyakov, Chantelle Freeman, Kathleen Richter, Jay deVenny, Nanette Myers, Michael F. O'Brien

66

Staging Regimen in Adult Spinal Deformity Surgery Significantly Impact Functional Outcome, Complications and Total Hospital Days

Hamid Hassanzadeh, Joseph Gjolaj, Mostafa El Dafrawy, Amit Jain, Richard L. Skolasky, Jr., Khaled Kebaish

67

The Effect of Pedicle Screw Hubbing on Pullout Resistance in the Thoracic Spine

Haines Paik, Daniel Gene Kang, Ronald A. Lehman, Anton E. Dmitriev, Rachel Gaume, Divya Ambati

68

Radiolucency and Pseudoarthrosis After 4-year Follow-up on a Minimally Invasive Presacral Approach

Luis Marchi, Leonardo Oliveira, Etevaldo Coutinho, Luiz Pimenta

69

Complications After 9-years Follow-up in Three Different Nucleus Replacement Devices

Luis Marchi, Leonardo Oliveira, Etevaldo Coutinho, Luiz Pimenta

70

Survival and Maturation of Human Spinal Neural Precursors (hNPCs) Grafted into Trauma Injured Spinal Cord in Immunosuppressed Minipig

Sassan Keshavarzi, Roman E. Navarro, Joseph D. Ciacci, Martin Marsala

71

Quantitative Assessment of Thecal Sac Decompression Following Lumbar Decompression: Comparison of a Minimally Invasive and an Open Approach

Lacey E. Bresnahan, Silviu Diaconu, Steven Quinn, Narina Simonian, Raghu N. Natarajan, George R. Cybulski, Richard G. Fessler

72

Combined Assessment of Pelvic Tilt, Pelvic Incidence/Lumbar Lordosis Mismatch and Sagittal Vertical Axis Predicts Disability in Adult Spinal Deformity: A Prospective Analysis

Shay Bess, Virginie Lafage, Benjamin Blondel, Frank Schwab, Richard A. Hostin, Christopher I. Shaffrey, Justin S. Smith, Oheneba Boachie-Adjei, Douglas C. Burton, Behrooz A. Akbarnia, Gregory Mundis, Christopher P. Ames, Robert Hart, International Spine Study Group

73

Surgical Treatment for Moderate Sized Main Thoracic Scoliosis Demonstrates Similar Acute Perioperative Outcomes for Adolescent and Adult Idiopathic Scoliosis: A Prospective, Matched Cohort Evaluation

Shay Bess, Burt Yazsay, Breton G. Line, Munish Gupta, Frank Schwab, Baron Lonner, Virginie Lafage, Douglas C. Burton, Behrooz A. Akbarnia, Oheneba Boachie-Adjei, Robert Hart, Richard A. Hostin, Christopher I. Shaffrey, International Spine Study Group

74

Functional Limitations Due to Lumbar Stiffness Correlate with Pain Related Disability Measures and Sagittal Imbalance Among Adult Spinal Deformity Patients

Praveen V. Mummaneni, Robert Hart, Richard A. Hostin, Christopher I. Shaffrey, Justin S. Smith, Oheneba Boachie-Adjei, Douglas C. Burton, Behrooz A. Akbarnia, Gregory Mundis, Virginie Lafage, Frank Schwab, Christopher P. Ames, Shay Bess, International Spine Study Group

75

Impact of Systemic Hypertension on MRI Signal Cord Changes in Cervical Stenosis Patients: An Observational Study

Samuel Kalb, Nikolay L. Martirosyan, Maughan K. Sindhwani, Hasan Zaidi, Nicholas Theodore

76

Revision Decompression and Fusion Improves Two-year Pain, Disability, and Quality of Life in Patients with Same Level Recurrent Lumbar Stenosis: Defining the Long-term Effectiveness of Surgery

Owoicho Adogwa, Scott L. Parker, David Shau, Stephen Mendenhall, Clinton J. Devin, Joseph S. Cheng, Matthew McGirt

77

Withdrawn

78

Cost-effectiveness of Ventral Fusion, Dorsal Fusion, and Dorsal Non-fusion Surgery for Cervical Spondylotic Myelopathy: 1-year Clinical and Economic Outcomes

Robert G. Whitmore, Sherman C. Stein, Edward C. Benzel, Subu N. Magge, Khalid M. Abbed, Erica Fay Bisson, Javed Shahid, Jean-Valery Coumans, Tanvir Choudhri, Michael P. Steinmetz, Ajit A. Krishnaney, William Butler, Frederick George Barker, Robert F. Heary, Zoher Ghogawala

79

Early vs. Delayed Endoscopic Surgery for Carpal Tunnel Syndrome: A Prospective Study

Pankaj Kumar Singh, P.S. Chandra

80

30-day Readmissions After Elective Spine Surgery for Degenerative Conditions Among US Medicare Beneficiaries

Marjorie C. Wang, Purushottam W. Laud, Ann B. Nattinger

81

Extent of Preoperative Depression Predicts Outcome After Revision Lumbar Surgery for Adjacent Segment Disease, Recurrent Stenosis, and Pseudoarthrosis

Owoicho Adogwa, Scott L. Parker, David Shau, Stephen Mendenhall, Joseph S. Cheng, Clinton J. Devin, Matthew McGirt

82

The Efficacy of Minimally Invasive Discectomy Compared to Open Discectomy: A Meta-Analysis of Prospective Randomized Controlled Trials

Hormuzdiyar H. Dasenbrock, Stephen P. Juraschek, Lonni Schultz, Timothy F. Witham, Ziya L. Gokaslan, Ali Bydon

83

Peri-operative and Delayed Complications Associated with Surgical Treatment of Cervical Spondylotic Myelopathy Based on a Prospective Multicenter Study of 302 Patients

Justin S. Smith, Christopher I. Shaffrey, Branko Kopjar, Paul M. Arnold, Sangwook Yoon, Alexander R. Vaccaro, Darrel S. Brodke, Michael Janssen, Jens Chapman, Rick Sasso, Eric J. Woodard, Robert J. Banco, Eric M. Massicotte, Mark B. Dekutoski, Ziya L. Gokaslan, Christopher Bono, Michael G. Fehlings

84

Withdrawn

85

Radiographic Correction Achievable in Adult Degenerative Scoliosis Treated by XLIF: Influence of Choice of Fixation

Frank M. Phillips, Safdar Khan, Jonathan Hyde, Kade T. Huntsman, Robert E. Isaacs, Vedat Deviren

86

Early Outcomes Comparison of MIS vs. Open Surgery after TLIF with Pedicle Screw Fixation

Gary A. Dix, Joseph S. Cheng, Kurt M. Eichholz, Douglas Linville, Jeffrey A. Murphy

87

Posterior Cervical Foraminotomy for Cervical Radiculopathy: Symptomatic and Functional Outcomes in 1085 Cases with Long-term Follow-up

Ephraim Church, Ryan Faught, Casey H. Halpern, Usha Balmuri, Mark Attiah, Sharon Hayden, Marie Kerr, Eileen Maloney-Wilensky, Janice Bynum, Stephen J. Dante, William Charles Welch, Frederick A. Simeone

88

Impact of Diabetes on Symptoms and Treatment Outcomes in Patients with Cervical Spondylotic Myelopathy: The Results of the AOSpine North America Multi-Center Prospective Study

Paul M. Arnold, Branko Kopjar, Michael G. Fehlings, Sangwook Yoon, Alexander R. Vaccaro, Darrel S. Brodke, Christopher I. Shaffrey, Eric J. Woodard, Robert J. Banco, Jens Chapman, Michael Janssen, Rick Sasso, Christopher Bono, Mark B. Dekutoski, Ziya L. Gokaslan

89

Cerebrospinal Fluid, Wound, and Hematoma Complications Following Intradural Spine Surgery

Jason Marshall Hoover, Michelle J. Clarke, Nicholas Michael Wetjen, Jay Mandrekar, William E. Krauss

90

Cervical Spine Cord Infarct After Decompressive Surgery

Samuel Kalb, Bruce Dean, Randall W. Porter, Nikolay L. Martirosyan, Nicholas Theodore

91

Correction of Sagittal Malalignment Following Pedicle Subtraction Osteotomy Improves Cervical Lordosis

Justin S. Smith, Virginie Lafage, Eric Klineberg, Christopher I. Shaffrey, Frank Schwab, Gregory Mundis, Robert Hart, Shay Bess, Richard A. Hostin, Douglas C. Burton, Munish Gupta, Vedat Deviren, Christopher P. Ames, International Spine Study Group

92

Analysis of Expression Levels of Specific MicroRNA as Related to the Duration of Compression in a Spinal Cord Injury Mouse Model

Mateo Ziu, Jennifer Gentry Savage, Lauren Fletcher, David F. Jimenez, Murat Digicaylioglu, Viktor Bartanusz

93

Laminectomy and Extension of Instrumented Fusion Improves Two-year Pain, Disability, and Quality of Life in Patients with Adjacent Segment Disease: Defining the Long-term Effectiveness of Surgery

Owoicho Adogwa, Scott L. Parker, David Shau, Stephen Mendenhall, Clinton J. Devin, Joseph S. Cheng, Matthew McGirt

94

Can Different Surgical Strategies Result in Satisfactory Post-Operative Sagittal Alignment?

Virginie Lafage, Frank Schwab, Benjamin Blondel, Christopher P. Ames, Richard A. Hostin, Robert Hart, Vedat Deviren, Behrooz A. Akbarnia, Jason Demakakos, Justin S. Smith, Christopher I. Shaffrey, Douglas C. Burton, Shay Bess, International Spine Study Group

95

Dysphagia After Anterior Cervical Spine Surgery: Incidence and Risk Factors

Samuel Kalb, Richard Lefevre, Marco T. Reis, Matthew C. Cowperthwaite, Nicholas Theodore, Douglas John Fox, Jr., Volker K. H. Sonntag

96

Withdrawn

97

Determination of Minimum Clinically Important Difference (MCID) in Pain, Disability, and Quality of Life After Extension of Fusion for Adjacent Segment Disease

Scott L. Parker, Owoicho Adogwa, David Shau, Stephen Mendenhall, Clinton J. Devin, Joseph S. Cheng, Matthew McGirt

98

Comparison Between Patient and Surgeon Perceptions of Spine Neurosurgical Outcomes: A Prospective Blinded Database Study

Laura Kaplan, Feifei Liu, Jingjing Shen, Ben Z. Roitberg

99

Patient Comorbidities and Complications Following Spinal Surgery: A Societal-based Cost Analysis

Robert G. Whitmore, James Stephen, Sherman C. Stein, Peter Campbell, Sanjay Yadla, James S. Harrop, Ashwini Dayal Sharan, Mitchell Gil Maltenfort, John K. Ratliff

100

Perioperative and Long-term Outcomes Following Surgery for Cervical Spine Deformity

Matthew Grosso, Roy Hwang, Thomas Mroz, Ajit A. Krishnaney, Edward C. Benzel, Michael P. Steinmetz

101

Self Reported Functional Limitations Due to Lumbar Stiffness Correlate with Age and SRS-22 Scores Among Asymptomatic Volunteers

Praveen V. Mummaneni, Robert Hart, Breton G. Line, Christopher I. Shaffrey, Justin S. Smith, Oheneba Boachie-Adjei, Douglas C. Burton, Behrooz A. Akbarnia, Virginie Lafage, Gregory Mundis, Frank Schwab, Christopher P. Ames, Shay Bess, International Spine Study Group

102

Pedicle Subtraction Osteotomy with Extension of Fusion to the Pelvis: Does Anterior Interbody Support at L5-S1 Improve Sagittal and Pelvic Parameters?

Christopher P. Ames, Munish Gupta, Eric Klineberg, Virginie Lafage, Shay Bess, Frank Schwab, Oheneba Boachie-Adjei, Behrooz A. Akbarnia, Gregory Mundis, Michael F. O'Brien, Richard A. Hostin, International Spine Study Group

103

Radiographic and Clinical Outcomes of One Institution's Early Experience with Extreme Lateral Interbody Fusion (XLIF) in the Treatment of Degenerative Scoliosis

Kaveh Khajavi

104

The Ventral Lamina and Superior Facet Rule: The Key to Accurate Placement for Thoracic Pedicle Screws

Daniel Gene Kang, Ronald A. Lehman, Lawrence Lenke, Rachel Gaume, Haines Paik

ORIGINAL SCIENCE PROGRAM

105

Safety of Intramedullary Peripheral Nerve Grafts for Severe Spinal Cord Injuries

Hooshang Saberi

106

Minimally Invasive Carpal Tunnel Release: A Safe Alternative to Open Release Procedures

Marc Christopher Manix, Prashant Chittiboina, Anirban Deep Banerjee, Anil Nanda

107

The Safety and Efficacy of Outpatient Anterior Cervical Decompression and Fusion for Symptomatic Spondylosis: Results of A Prospective Cohort Series of 180 Cases

Rajesh Reddy, Eric M. Massicotte, Michael G. Fehlings

108

Lumbar Disc Ruptures: Sequestrectomy vs. Discectomy

Panagiotis G. Papanikolaou, Theophilos S. Paleologos, Anastasios Venetikidis, Moschos Fratzoglou, Panagiotis Kokkalis, Georgios Stamatopoulos, Emmanuel Chatzidakis, Theodoulos Kyriakou

109

Difficulties in Treating Tuberculosis of the Central Nervous System (CNS TB): Surgical Experience of 14 Cases in a Tertiary Care Neuro-surgical Setup in Kolkata in Eight Months' Period

Laxmi Narayan Tripathy, Kaushik Sil, S. Basu, H. Jain

110

Surgical Management of Symptomatic Sacral Tarlov Cysts

Matthew B. Potts, Mary H. McGrath, Philip R. Weinstein

Oral Presentations

2:00 – 3:30 PM

Room 206

Section on Neurotrauma and Critical Care

Moderators: Odette Harris, Shelly D. Timmons

★ SYNTHES AWARD FOR RESIDENT RESEARCH ON BRAIN AND CRANIOFACIAL INJURY

2:00 – 2:09 PM

931

Benchmarking Trauma Center Performance in TBI: The Limitations of Mortality Outcomes

Sunjay Vishnu Sharma, Barbara Haas, David Gomez, Charles deMestral, James T. Rutka, Avery B. Nathens

★ SYNTHES AWARD FOR RESIDENT RESEARCH ON SPINAL CORD AND SPINAL COLUMN INJURY

2:09 – 2:18 PM

932

Effects of a Combined Immunomodulatory Therapy and Chondroitinase After Spinal Cord Hemisection Injury

Virgilio Matheus, Christopher A. Iannotti, Megan Clark, Grosso Matthew, Michael P. Steinmetz

2:18 – 2:27 PM

933

Mild Traumatic Brain Injury Results in Atrophy of Bilateral Hippocampi over Time as Well as Persistent Impaired Memory

Sandya Venugopal, Mehul Sampat, Sara C. LaHue, Shelly Cooper, Hana A. Lee, Jamshir Ghajar, Geoffrey T. Manley, Pratik Mukherjee

2:27 – 2:36 PM

934

Histopathological Prevalence of Alzheimer's Disease in Patients Undergoing Shunting for Normal Pressure

Abhay Moghekar, Barbara Crain, David Solomon, Sevil Yasar, Richard O'Brien, Daniele Rigamonti

2:36 – 2:45 PM

935

Computerized Multi-modality Neuro-critical Monitoring in Acute Traumatic Brain Injury: Temporal Relationship Between Cerebral Oxygenation and Physiological Parameters: A Real-time Analysis Using Symbolic Regression

Pradeep K. Narotam, John Morrison, Michael Schmidt, Narendra Nathoo

2:45 – 2:54 PM

936

PET Molecular Imaging To Investigate the Higher Brain Dysfunction in Patients with Neurotrauma

Toshiki Tomori, Tadashi Nariai, Motoki Inaji, Mikio Hiura, Chihiro Hosoda, Kiichi Ishiwata, Kenji Ishii, Kikuo Ohno

2:54 – 3:03 PM

937

Procalcitonin Is a More Specific Marker and Has a Higher Positive Predictive Value for Identifying Cases of Spinal Postoperative Infections than ESR or CRP

Katharine M. Cronk, Nicholas Theodore

3:03 – 3:12 PM

938

Carbamylated Erythropoietin Promotes Angiogenesis and Neurogenesis, and Improves Functional Outcome After Traumatic Brain Injury in Rats

Asim Mahmood, Ye Xiong, Michael Chopp

3:12 – 3:21 PM

939

Progressive Hemorrhagic Injury as a Surrogate Measure of Treatment Effect in Motor Complete Spinal Cord Injury

Bizhan Aarabi, Melvin Alexander, Stuart Mirvis, Kathirkamanathan Shanmuganathan, Katie Zacherl, Khawar Ali

3:21 – 3:30 PM

940

Functional Outcome Measures and Predictors of Neuropsychological Testing Following Brain Tissue Oxygen Monitoring in TBI

Jason Jer Jia Chang, Gretchen Otto, Shirley Whitkanack, Jason Barber, Randall Matthew Chesnut, Surreya Dikmen, Nancy Temkin

ORIGINAL SCIENCE PROGRAM

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Neurotrauma and Critical Care

Moderators: Odette Harris, Shelly D. Timmons

111

Specific Role of Transcranial Doppler Ultrasound for Patients with Wartime Traumatic Brain Injury

Rocco Armonda, Teodoro Tigno, Sven Markus Hochheimer, Frederick L. Stephens, Randy Scott Bell, Alexander H. Vo, Meryl A. Severson, III, Robert Doniger Ecker, Alexander Y. Razumovsky

112

Admission Hyperglycemia Reflects both Early Glucose Variability and ICU-mortality in Head Trauma Patients

Lara Prisco, Mario Ganau

113

Role of Arginine Vasopressin V1a and V2 Receptors for Secondary Brain Damage After Experimental Traumatic Brain Injury in Mice

Sandro M. Krieg, Raimund Trabold, Sebastian M. Sonanini, Nikolaus Plesnila

114

Quantification on a National Scale of Mortality Risk from Defects in Serum Glucose Control at Intensive Care Admission After Traumatic Brain Injury

Jonathan A. Hyam, Cathy A. Welch, David A. Harrison, David K. Menon, Kathy Rowan

115

Comprehensive Analysis of Diffusion Tensor Imaging in Spinal Cord Injury

Shekar N. Kurpad, Brian Schmit, John L. Ulmer

116

Biocompatibility of a Novel Biomaterial for Adult Neural Progenitor Cell Proliferation and Differentiation

Eve C. Tsai, Ushanthini Shanmugalingam, Matthew Coyle, Xudong Cao

117

Withdrawn

118

Cranioplasty Following Decompressive Craniectomy in Traumatic Brain Injury: Experience at Level - I Apex Trauma Center

Noufal Basheer, Deepak Kumar Gupta, Ashok Kumar Mahapatra, Deepak Aggrawal, Sumit Sinha

119

Biomechanical Analysis of Lateral Neck Injury Thresholds Under Coronal Loading

Christopher E. Wolfla, Narayan Yoganandan, Dennis J. Maiman, John R. Humm

120

Cryopreservation vs. Subcutaneous Preservation for the Infection Rate of Autologous Cranioplasty

Cheng-Hsin Cheng

121

Uncoupled Neuronal-glia Metabolism Following Severe Traumatic Brain Injury

Sanju Lama, Boguslaw Tomanek, Garnette R. Sutherland

122

Hypertonic Saline for Treating Raised Intracranial Pressure: A Review of the Literature with Meta-analysis

Martin M. Mortazavi, Andrew K. Romeo, Aman Deep, Christoph Johannes Griessenauer, Mohammadali Mohajel Shoja, R. Shane Tubbs, Winfield S. Fisher, III

123

Prognostic Value of Age, Especially for Old (Over 65), in Determining Decompressive Craniectomy in Traumatic Brain Injury

Jong Wook Choi, Hyen-Ho Jung, Kum Whang, Myeong Sub Lee, Hun-Joo Kim, Sun Ki Hong, Chul Hu, Jhin Soo Pyen

124

Utility of Platelet Sensitivity Assays in Traumatic Brain Injury

Michael LaBagnara, Matthew Decker, Brad Moore, Jayson Andreau Neil, Dhruve Satish Jeevan, David Ryan Ormond, Michael F. Stiefel, Corrado Marini, John M. Abrahams, Raj Murali, Jennifer Ronecker

125

Longitudinal Incidence and Concurrence Rates for Traumatic Brain Injury and Spine Injury: A Retrospective Analysis of the National Inpatient Sample Database over a Twenty-Year Period

Peter Sebastian Amenta, Muhammad Ali, James S. Harrop, Ashwini Dayal Sharan, John Kevin Ratliff, Srinivas K. Prasad

126

Development and Early Experience with an iPhone App for Sideline Concussion Testing

Richard A. Rovin, Nikhil Sharma, Guillaume Curaudeau

127

Acute and Subacute Neural Stem Cell Delivery for Traumatic Brain Injury

Chirag D. Gandhi, Mevan Siriwardane, Nolan Skop, Allen H. Maniker, Steve Levison

128

Minimal Invasive Decompression of Chronic Subdural Hematomas Using Hollow Screws: Therapeutic Efficacy, Patients' Acceptance and Quality of Life

Sandro M. Krieg, Fanny Aldinger, Jens Gempt, Michael Stoffel, Bernhard Meyer, Jürgen Kreutzer

129

Brain CT Scan Compared to Somatosensory Evoked Potential (SSEP) Grade for Predicting Outcome and Functional Recovery in Comatose Patients with Traumatic Brain Injury (TBI)

Parviz Dolati-Ardejani, Rajiv Midha, Michael L. Schwartz, David A. Houlden

ORIGINAL SCIENCE PROGRAM

130

First Eight Hours Clinical Spinal Cord Injury Decompression Confirmed Promising Experimental Data

Kreso Sasa Duric, Marin F. Stancic

Oral Presentations

2:00 – 3:30 PM

Room 203A

Section on Pain

Moderators: *Joshua M. Rosenow, Christopher J. Winfree*

★ RONALD TASKER AWARD

2:00 – 2:09 PM

941

Peripheral Neuromodulation for Headache and Craniofacial Pain: Indications, Outcomes, and Complications from a Single Center

Antonios Mammis, Alon Y. Mogilner

2:09 – 2:18 PM

942

Recurrent Symptoms Following Craniovertebral Decompression for Chiari Malformation: The Role of Disturbed CSF Dynamics

Girish V. Kulkarni, Andrew Tarnaris, Hollie Murphy, Marek Czosnyka, Zofia Czosnyka, Graham Flint

2:18 – 2:27 PM

943

Cost-effectiveness of Intrathecal Drug Therapy in the Treatment of Chronic Non-malignant Pain

Krishna Kumar, Syed A.A. Rizvi, Mariam Abbas, Sharon Bishop

2:27 – 2:36 PM

944

Role and Cost Impact of Polyanalgesia in Intrathecal Drug Therapy

Krishna Kumar, Syed A.A. Rizvi, Sharon Bishop

2:36 – 2:45 PM

945

Failure of Motor Cortex Stimulation in the Management of Neuropathic Pain

Adam J. Sachs, Harish Babu, Jaimie M. Henderson

2:45 – 2:54 PM

946

Impact of Cymbalta in Perioperative Spine Patients: An Early Look

Ciera Scott, Lee Hyer, M. Sami Walid, Joe S. Robinson

2:54 – 3:03 PM

947

Outcomes After Percutaneous Surgery for Patients with Multiple Sclerosis Related Trigeminal Neuralgia

Grant W. Mallory, Bruce E. Pollock

3:03 – 3:12 PM

948

Effectiveness of Repeat Glycerol Rhizotomy in Treating Trigeminal Neuralgia

Matthew Bender, Gustavo Pradilla, Sachin Batra, Alfred Pokmeng See, Carol James, Benjamin S. Carson, Michael Lim

3:12 – 3:21 PM

949

Safety of Microvascular Decompression for Trigeminal Neuralgia in the Elderly

Anand Rughani, Travis Michael Dumont, Chih-Ta Lin, Bruce I. Tranmer, Michael Horgan

3:21 – 3:30 PM

950

Determination of Minimum Clinically Important Difference (MCID) in Pain Improvement after Microvascular Decompression for Trigeminal Neuralgia

Vishruth K. Reddy, Scott L. Parker, Dennis T. Lockney, Samit A. Patrawala, Robert A. Mericle

Neurosurgical Forum

3:30 – 5:00 PM

East Registration

Section on Pain

Moderators: *Joshua M. Rosenow, Christopher J. Winfree*

131

Surgical Treatment of Trigeminal Neuralgia in Patients with Multiple Sclerosis

Matthew Bender, Gustavo Pradilla, Sachin Batra, Alfred Pokmeng See, Neal Bhutiani, Carol James, Michael Lim, Benjamin S. Carson

132

Effectiveness of Repeat Radiofrequency Thermocoagulation in the Treatment of Recurrent Trigeminal Neuralgia

Matthew Bender, Gustavo Pradilla, Sachin Batra, Alfred Pokmeng See, Neal Bhutiani, Carol James, Michael Lim, Benjamin S. Carson

133

Safety and Efficacy of Secondary Microvascular Decompression as Treatment for Recurrent Trigeminal Neuralgia

Gustavo Pradilla, Neal Bhutiani, Sachin Batra, Matthew Bender, Alfred Pokmeng See, Tomas Garzon-Muvdi, Carol James, Benjamin S. Carson, Michael Lim

134

Long-term Outcomes of Occipital Neurostimulation with Paddle Electrodes for the Treatment of Intractable Headaches

Sean J. Nagel, Kara D. Beasley, Milind S. Deogaonkar, Andre Machado

135

CSF Dynamics in Idiopathic Syringomyelia

Girish V. Kulkarni, Andrew Tarnaris, Hollie Murphy, Marek Czosnyka, Graham Flint, Zofia Czosnyka

ORIGINAL SCIENCE PROGRAM

136

Human Factors Research to Improve Programming and Drug Dosing for an Intrathecal Drug Delivery System

Sarah B. Alme, Ajinkya Joglekar

137

Neuropraxia of Trigeminal Nerve for the Management of Patients with Trigeminal Neuralgia Without Vascular Compression

Jaime Jesus Martinez Anda, Rogelio Revuelta-Gutierrez, Juan Barges Coll

138

Microvascular Decompression and Gamma Knife Radiosurgery for Trigeminal Neuralgia: A Study on Long-term Efficacy and Patient Satisfaction

Shihao Zhang, Vijayakumar Javalkar, Lissa Catherine Baird, Osama Ahmed, Anil Nanda

139

Prefrontal Lobotomy in Eva Peron: New Revelations

Daniel E. Nijensohn, Luis E. Savastano, Edward R. Laws, Jr., Alberto D. Kaplan, Fabian Cremaschi

140

Endoscopic-assisted Microvascular Decompression: A Cadaveric Study

Chi-Tun Tang, Mario Ammirati, Nishanta B. Baidya

Oral Presentations

2:00 – 3:30 PM

Room 207B

Section on Pediatric Neurological Surgery

Moderators: Alan R. Cohen, Mark R. Proctor

2:00 – 2:09 PM

951

Identification of the Rho Guanine Nucleotide Exchange Factor, Trio as a Novel Therapeutic Target for Medulloblastoma Invasion

Salvatore M. Zavarella, Sebastien Didier, Mark Mittler, Steven J. Schneider, Marc H. Symons

2:09 – 2:18 PM

952

Incidence, Survival, and the Impact of Radiotherapy in Pediatric Primary Spinal Cord Tumors

Melanie G. Hayden Gephart, Robert Thomas Arrigo, Raphael Guzman, Maxwell Boakye, Michael S.B. Edwards, Paul Fisher

★ SHERRY APPLE RESIDENT TRAVEL SCHOLARSHIP

2:18 – 2:27 PM

953

Evaluating the Children's Hospital of Alabama Endoscopic Third Ventriculostomy Experience Using the ETV Success Score: An External Validation Study

Robert Partlow Naftel, Gavin T. Reed, Abhaya Vivek Kulkarni, John C. Wellons, III

2:27 – 2:36 PM

954

Management of Dandy-Walker Complex-Associated Hydrocephalus by Combined Endoscopic Third Ventriculostomy and Choroid Plexus Cauterization (ETV/CPC) in 42 East African Children

Michael C. Dewan, Benjamin Warf, John Mugamba

2:36 – 2:45 PM

955

Using Statistical Process Control Methodology to Decrease the Shunt Infection Rate at a Stand Alone Children's Hospital

Corey Raffel, Mike Fetzer, Dennis J. Cunningham

2:45 – 2:54 PM

956

Vagal Nerve Stimulation for Partial and Generalized Epilepsy From Infancy to Adolescence

Eric M. Thompson, Susan E. Wozniak, Colin Roberts, Valerie C. Anderson, Nathan R. Selden

2:54 – 3:03 PM

957

Characterization of the Supplementary Motor Area Syndrome and Seizure Outcome Following Medial Frontal Lobe Resections in Pediatric Epilepsy Surgery

Chester Yarbrough, Aimen S. Kasasbeh, David D. Limbrick, Jr., Karen Steger-May, Francesco T. Mangano, Matthew D. Smyth

3:03 – 3:12 PM

958

Middle Cerebral Artery Aneurysms in Children: Case Series and Literature Search

Jason M. Voorhies, Daniel H. Fulkerson, Thomas J. Leipzig, Terry H. Horner, Kathleen Redelman, Aaron Afshin Cohen-Gadol, Troy D. Payner

3:12 – 3:21 PM

959

The Comparison of Early Results of Three Operational Methods in 138 Children with Non-syndromic Craniosynostosis: Trans-sutural Distraction Osteogenesis, Rotating Distraction Osteogenesis and Conventional Craniotomy and Remodeling

Soo Han Yoon, She-Hyuck Park, Dong Ha Park

3:21 – 3:30 PM

960

Hematologic Abnormalities Observed in Pediatric Patients Treated with Prolonged Continuous Hypertonic Saline for Elevated Intracranial Pressure.

David D. Gonda, Chiaz Amene, Hal S. Meltzer, Michael L. Levy

ORIGINAL SCIENCE PROGRAM

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Pediatric Neurological Surgery

Moderators: Alan R. Cohen, Mark R. Proctor

141

Variation of the Interfrontal Angle in Children with Metopic Synostosis

Ryan Thomson Kellogg, Jeffrey Marcus, Gerald A. Grant

142

Insights into the Pathogenesis of Papilledema in an Experimental Model of Hydrocephalus

Satish Krishnamurthy, J. Li, Kenneth Jenrow

143

The Effects of Diesel Exhaust Particles on Neural Tube Development in the Early Stage Chicken Embryo

Hakan Simsek, Ahmet Colak, Serdar Kaya, Murat Kutlay, Aptullah Haholu

144

Conservative Management for Pure Pediatric Lumbar Seat-belt Fracture: A Case Report

Yong-Jun Cho, Dong-Hwa Heo, Seung-Hoon Sheen, Suk-Hyung Kang, Gyojun Hwang, Mi-Sook Yong, Hyaе-Young Shin

145

Image-guided CSF Shunting in the Pediatric Population: Catheter Accuracy and Shunt Survival

Michael Robert Levitt, Brent R. O'Neill, Gisele E. Ishak, Paritosh C. Khanna, Jeffrey G. Ojemann, Samuel Robert Browd

146

Pre-operative Anatomic Features of the Third Ventricle and Implications on Endoscopic Third Ventriculostomy Outcome

Brian J. Dlouhy, Ana W. Capuano, Karthik H. Madhavan, James Torner, Jeremy D.W. Greenlee

147

Percutaneously-placed Ventriculo-atrial Shunts: Better Option in Complex Pediatric Shunt Patients?

Ameet V. Chitale, Robert F. Keating, John S. Myseros, Amanda Yaun, Steven Lossef, Suresh N. Magge

148

Spinal Arachnoid Cysts in the Pediatric Population: Report of 31 Cases and a Review of the Literature

Aaron E. Bond, Gabriel Zada, J. Gordon McComb, Mark D. Krieger

149

Intraoperative MRI During Temporal Lobectomy in Children: Does It Help?

David J. Donahue, Angel Hernandez, Saleem Malik, M. Perry

150

Progression of Cerebrospinal Fluid White Blood Cell Count and Differential During Treatment of Shunt Infection

Ahilan Sivaganesan, Daniel H. Fulkerson, Jason David Hill, John Edwards, Joel C. Boaz, Andrew Jea

151

Withdrawn

152

Return to Sports After Surgery to Correct Adolescent Idiopathic Scoliosis

Ronald A. Lehman, Daniel Gene Kang, Lawrence Lenke, Daniel Sucato

153

The Frequency and Severity of Traumatic Brain Injury in the Pediatric Population Following Motocross Accidents

David J. Daniels, Ross Puffer, Fredric B. Meyer, Mark B. Dekutoski, Amy McIntosh, Nicholas Michael Wetjen

154

Hydrocephalus Associated with Childhood Non-accidental Head Trauma

Sudhakar Vadivelu, Debbie Esernio-Jenssen, Harold L. ReKate, Raj K. Narayan, Mark Mittler, Steven J. Schneider

155

Outcomes of Decompressive Craniectomy in the Pediatric Population

Margaret Riordan, Zulma Sarah Tovar-Spinoza

156

Chiari Type 1 Malformation with Papilledema in Children

Sarah Ferrand-Sorbets, Martine Fohlen, Christine Bulteau, Francois Audren, Patricia Koskas, Olivier Delalande, Georg Dorfmueller

157

Pediatric Spinal Glioblastoma Multiforme

Chiagozie Ononiwu, Chetan Bettegowda, Vivek Mehta, George I. Jallo

158

Split Cord Malformations

Pranav Ghodgaonkar

159

Comparison of Clinical Outcomes of Duraplasty Grafts in Posterior Fossa Decompression for Chiari I Malformations

Menarvia K.C. Nixon, Anil Nanda, Brian K. Willis, Bharat Guthikonda

160

Arachnoid Cysts in Medically Refractory Epilepsy

James E. Baumgartner, Ricky J.L. Haywood-Watson

ORIGINAL SCIENCE PROGRAM

Oral Presentations

2:00 – 3:30 PM
Room 207A

Section on Stereotactic and Functional Neurosurgery

Moderators: Aviva Abosch, Konstantin V. Slavin

2:00 – 2:09 PM

961

Human Dorsal Anterior Cingulate Cortex Neurons Recruit Cognitive Control

Matthew Kamal Mian, Sameer A. Sheth, Shaun Patel, Wael Asaad, Ziv Williams, Emad N. Eskandar

2:09 – 2:18 PM

962

Single-unit Responses Selective for Whole Faces in the Human Amygdala

Adam N. Mamelak, Ueli Rutishauser, Oana Tudusciuc, Ian B. Ross, Christopher A. Heller, Ralph Adolphs

★ STEREOTACTIC AND FUNCTIONAL NEUROSURGERY RESIDENT AWARD

2:18 – 2:27 PM

963

Postural Fall in Blood Pressure in Parkinson's Disease Is Reduced by Pedunculopontine Nucleus Region Stimulation

Jonathan A. Hyam, Wesley Thevathasan, Shouyan Wang, Graham Kerr, Terry Coyne, Peter Silburn, David J. Paterson, Tipu Z. Aziz, Alexander L. Green

2:27 – 2:36 PM

964

Decision Conflict Modulates Spiking Activity and Oscillatory Power in the Human Subthalamic Nucleus During Action Selection

Kareem A. Zaghloul, Bradley Lega, Christoph T. Weidemann, Jurg L. Jaggi, Gordon H. Baltuch, Michael J. Kahana

2:36 – 2:45 PM

965

Dopamine Gene Therapy Approach for the Treatment of Parkinson's Disease: Phase I/II Clinical Trial Update

Stephane Palfi, Jean Marc Gurruchaga, Bechir Jarraya, Scott Ralph, Helene Lepetit, Hiro Iwamuro, Naoki Tani, James Miskin, Sarah Scorer, M. Kelleher, Xavier Drouot, Sonia Lavis, Aurelie Kas, Anne Laure Ramelli, Thierry Soulas, Patrice Dolphin, Ku Abhay, Innana Gabriel, Gilles Fenelon, Sue Kingsman, Philippe Hantraye, Graham Price, Stuart Naylor, Philippe Remy, Kyriacos Mitrophanous

2:45 – 2:54 PM

966

MR Guided Focused Ultrasound Lesioning for the Treatment of Essential Tremor. A New Paradigm for Noninvasive Lesioning and Neuromodulation

W. Jeffrey Elias, Diane Huss, Mohamad A. Khaled, Stephen J. Monteith, Robert Frysinger, Johanna Loomba, Jason Druzgal, Scott Wylie, Tiffini Voss, Madaline Harrison, Fred Wooten, Max Wintermark

2:54 – 3:03 PM

967

Deep Brain Stimulation of the Nucleus Accumbens Attenuates Binge Eating in Mice: Preliminary Evidence for A Potential Therapeutic Role of Neuromodulation in Treatment-Refractory Obesity

Casey H. Halpern, Jeffrey G. Keating, John Wolf, William C. Rodemer, Jurg L. Jaggi, Gordon H. Baltuch, Marc A. Dichter, Tracy L. Bale

3:03 – 3:12 PM

968

Optical Control of Neural Stem Cell Grafts in Experimental Stroke Model

Marcel M. Daadi, Inbal Goshen, Jill Klausner, Christopher Lee-Messer, GuoHua Sun, Karl Deisseroth, Gary K. Steinberg

3:12 – 3:21 PM

969

Neurons of the Human Nucleus Accumbens (NAcc) Encode the Temporal Sequence of Reward Expectation and Signal Unexpected Loss

Muhammad Abd-El-Barr, Nicholas Maling, Kelly D. Foote, Michael S. Okun, Justin Sanchez

3:21 – 3:30 PM

970

Tracking Accuracy of T2- and Diffusion-weighted Magnetic Resonance Imaging for Infusate Distribution by Convection-Enhanced Delivery

Rajiv Iyer, John A. Butman, Stuart Walbridge, Neville D. Gai, John D. Heiss, Russell R. Lonser

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Stereotactic and Functional Neurosurgery

Moderators: Aviva Abosch, Konstantin V. Slavin

161

The Utility of the O-arm in Frameless Deep Brain Stimulation Surgery

Kathryn L. Holloway, George Gitchel, Dimitri Karles, Alen Docef

162

Randomized, Double-Blinded, Multi-Center, Placebo-Controlled Trial of Deep Brain Stimulation for Essential Tremor

Jonathan A. Hyam, Shazia Javed, Erlick A.C. Pereira, Puneet Plaha, Lucy Mooney, Beth Forrow, Carole Joint, Alan Whone, Steven Gill, Alexander L. Green, Tipu Z. Aziz

163

Single Unit and Oscillatory Activity During Reward Learning in the Human Substantia Nigra

Bradley Lega, Michael J. Kahana, Jurg L. Jaggi, Gordon H. Baltuch, Kareem A. Zaghloul

ORIGINAL SCIENCE PROGRAM

164

Deep Brain Stimulation in the Central Nucleus of the Amygdala Decreases Consumption of Sucrose Pellets in a Reversible Manner

Emily Marie Lehmann, Shani E. Ross, J. Wayne Aldridge

165

Gene Delivery of the Clostridial Tetanus Toxin Light Chain Inhibits Neural Activity in Rats

Nicholas Boulis

166

Utilization Patterns of DBS in Parkinson's and Essential Tremor in the US

Julie G. Pilitsis, Mary Linton Peters, Anthony Michael Burrows, Julie Sargent, Jennifer Tseng, Sing Chau Ng

167

Interhemispheric Subdural Electrodes (IHSE): Utility, Technique and Safety

Tarek Abuelem, David Elliot Friedman, Satish Agadi, Angus A. Wilfong, Daniel Yoshor

168

Identifying Brain Networks Using Single Pulse Electrical Stimulation (SPES) and Resting State Functional MRI Connectivity Analysis

Laszlo Entz, Stephan Bickel, Emilia Toth, Corey J. Keller, Sharif Vakili, James Corines, Sara Stream, Sanjay Jain, Istvan Ulbert, Ashesh Mehta

169

Extent of Temporal Lobe Resection Predicts Seizure-Freedom in Low-grade Brain Tumor Patients

Dario J. Englot, Seunggu J. Han, Mitchel S. Berger, Nicholas M. Barbaro, Edward F. Chang

170

Enhancing Efficiency of Intracerebral Delivery: A Study of Phantom Brain Dynamics

John Paul Argenti, Anahi Hurtado, Lee Margolin, Jonathan Berry, Miles Cunningham

171

A Magnetic Resonance Imaging and Histologic Comparison between Radiofrequency, GammaKnife Radiosurgery, and Focused Ultrasound Lesions in Brain

Mohamad A. Khaled, W. Jeffrey Elias, Robert Frysinger, Jason P. Sheehan, Max Wintermark, M. Beatriz Lopes

172

Technical Modifications to Minimize Incidence of Aseptic Meningitis and CSF Leakage Following Microvascular Decompression: Analysis of 100 Consecutive Patients Treated at a Single Institution

Jonathan Forbes, Michael Stoker, Calvin Michael Cooper, Joseph Samir Neimat, Peter Konrad

173

Anterior Temporal Lobectomy and Amygdalohippocampectomy for Mesial Temporal Sclerosis: Predictors of Long-term Seizure Control

Robert E. Elliott, Robert John Bollo, Jonathan Berliner, Alyson Silverberg, Chad Carlson, Eric Geller, Orrin Devinsky, Werner Doyle

174

Gamma Knife Radiosurgery vs. Percutaneous Retrogasserian Glycerol Rhizotomy for Multiple Sclerosis Related Trigeminal Neuralgia

Khaled Effendi, Mario Seguin, Jocelyn Blanchard, David Mathieu

175

Cortical Plasticity Following Cingulotomy for Obsessive-Compulsive Disorder

Sameer A. Sheth, Patrick Schweder, Christian Strong, Matthew Kamal Mian, Darin D. Dougherty, Emad N. Eskandar

176

Paradoxical Enlargement of the Epileptogenic Mesial Temporal Structure

Mohammed Alsaïdi, Kouros Jafari, David Ramsay, Jorge A. Gutierrez, Kost Elisevich

177

Predictors of Neurocognitive Impairment Following Deep Brain Stimulator Implantation for Essential Tremor

James McInerney, Omar Akram Zalatimo, Moksha Ranasinghe, Gareth M. Davies, Elana Farace

178

Posterior Hypothalamotomy for Intractable Aggressivity

Jose Augusto Nasser Dos Santos, Asdrubal Falavigna, Armando Alaminos

179

In-Vivo Segmentation of the Human Amygdala Using Diffusion Tensor Imaging and Probabilistic Tractography

Ausaf Bari, Zhong Zheng, Antonio DeSalles, Nader Pouratian

Oral Presentations

2:00 – 3:30 PM

Room 201

Section on Tumors

Moderators: *Costas George Hadjipanayis, Frederick F. Lang*

2:00 – 2:09 PM

971

Clinical Experience with an Image Guided Surgical Robot

Garnette R. Sutherland, Sanju Lama

ORIGINAL SCIENCE PROGRAM

★ INTEGRA FOUNDATION AWARD

2:09 – 2:18 PM

972

Gamma Knife Radiosurgery for the Management of Glomus Tumors: A Multicenter Study

Jason P. Sheehan, Shota Tanaka, Michael J. Link, Bruce E. Pollock, Douglas Kondziolka, David Mathieu, Alfred Byron Young, Anthony M. Kaufmann, Heyoung McBride, Zheng Xu, L. Dade Lunsford

★ NATIONAL BRAIN TUMOR SOCIETY MAHALEY CLINICAL RESEARCH AWARD

2:18 – 2:27 PM

973

A Phase I Study of Vaccination with Lethally Irradiated Glioma Cells Mixed with GM-K562 Cells in Patients Undergoing Craniotomy for Recurrent Tumor

William T. Curry, Jr., Tracy Batchelor, Pankaj Kumar Agarwalla, Jan Drappatz, Frederick George Barker, Patrick Y. Wen, Glenn Dranoff

2:27 – 2:36 PM

974

Clinical Features of Pre-operative and Post-operative Epilepsy in Intracranial Meningiomas and the Use of Peri-operative Anti-epileptic Drugs

Say Ayala-Soriano, Andrew Tarnaris, Paul Edward Dodds, Jesus Lafuente, David G.T. Thomas, Laurence Dale Watkins

★ JOURNAL OF NEURO-ONCOLOGY AWARD

2:36 – 2:45 PM

975

An RNAi Screen Identifies TRRAP as a Regulator of Brain Tumor-Initiating Cell Differentiation

Stephen Skirboll, Heiko Wurdak, Zhu Shoutian, Angelica Romero, Mihaela Lorger, James Watson, Chih-yuan Chiang, Jay Zhang, Vanita Natu, Luke Lairson, John Walker, Christopher Trussell, Griff Harsh, Hannes Vogel, Brunhilde Felding-Habermann, Anthony Orth, Loren Miraglia, Daniel Rines, Peter Schultz

★ AMERICAN BRAIN TUMOR ASSOCIATION YOUNG INVESTIGATOR AWARD

2:45 – 2:54 PM

976

Canine Model of Convection-Enhanced Delivery of Cetuximab Conjugated Iron-Oxide Nanoparticles Monitored with Magnetic Resonance Imaging

Costas George Hadjipanayis, Simon Ronald Platt, Edjah K. Nduom, Marc Kent, Courtenay Freeman, Revaz Machaidze, Milota Kaluzova

2:54 – 3:03 PM

977

Expanded Endoscopic Surgery for Clival Chordomas: Experience with 60 Cases

Maria Koutourousiou, Matthew J. Tormenti, Alessandro Paluzzi, Stephanie L. Henry, Juan Carlos Fernandez-Miranda, Carl Snyderman, Paul A. Gardner

3:03 – 3:12 PM

978

Surgeries in Sitting Position for Patients with a Patent Foramen Ovale: An Evaluation of the Risk of a Paradoxical Venous Air Embolism

Guenther C. Feigl, Karlheinz Decker, Boris Krischek, Rainer Ritz, Kristofer Ramina, Marcos S. Tatagiba

★ PREUSS AWARD

3:12 – 3:21 PM

979

Resection of Malignant Glioma Results in Significant Decrease in Circulating Tumor-Specific Hypermethylated DNA. A Potential Biomarker?

Kyle Weaver, Larry Pierce, Sharon Phillips

★ STRYKER NEURO-ONCOLOGY AWARD

3:21 – 3:30 PM

980

Gliomas Promote Local and Systemic Immunosuppression Through Induction of B7-H1 Expression in Tumor-Associated Macrophages

Orin Bloch, Brian J. Jian, Courtney Crane, Gurvinder Kaur, Rajwant Kaur, Martin J. Rutkowski, Andrew T. Parsa

Neurosurgical Forum

3:30 – 5:00 PM
East Registration

Section on Tumors

Moderators: Costas George Hadjipanayis, Frederick F. Lang

180

Wound Complications in Recurrent Glioma Surgery

Jason Marshall Hoover, Jay Mandrekar, Fredric B. Meyer, Ian F. Parney

181

A Phase II Study of Gliadel® Wafers in Association with Prolonged Metronomic Temozolamide and Radiation Therapy in Newly Diagnosed Glioblastomas: Preliminary Results

Francesco DiMeco, Paola Gaviani, Cecilia Casali, Antonio Silvani, Federico G. Legnani, Carlo L. Solero, Andrea Salmaggi

182

Predictors of Inpatient Complications and Outcomes Following Surgical Resection of Hypothalamic Hamartomas

Debraj Mukherjee, Miriam Nuno, Christine Carico, Chirag G. Patil

183

Bevacizumab Induces Apoptosis and p53 Overexpression in Glioblastoma Stem Cells

Demirkan Gursel, Benjamin Shin, Jan-Karl Burkhardt, Cody D. Schlaff, John Andrew Boockvar

184

Surgery for Primary Intraventricular Lesions: Experience with 251 Cases

Rahul Ved, Basant Kumar Misra

186

Withdrawn

187

Anti-angiogenic and Anti-invasive Effect of Cilengitide on Experimental Glioma

Manabu Onishi, Tomotsugu Ichikawa, Kazuhiko Kurozumi, Kentaro Fujii, Koichi Yoshida, Satoshi Inoue, Hiroyuki Michiue, E. Antonio Chiocca, Balveen Kaur, Isao Date

188

Intracranial Delivery of Cell Metabolic Inhibitors for Glioma

Robert Thomas Wicks, Betty Tyler, Javad Azadi, Kristin L. Martin, Alp Yurter, Henry Brem

189

Anti-CD47 Treatment: A Potential Pro-phagocytic Immunotherapy for Glioblastoma Multiforme

Marcus Alexander, Jian Wang, Siddhartha S. Mitra, Chase Richard, Humberto Contreras-Trujillo, Debashis Sahoo, Irving Weissman, Samuel Henry Cheshier

190

Induction of Plasticity with Cortical Stimulation Permits Enhanced Resection of Tumors in Broca's Area

Juan A. Barcia, Ana Sanz, Paloma Balugo, Pedro Alonso-Lera, Juan Raúl Brin, Javier Saceda, Miguel Yus, Manuela Jorquera, Mercedes González-Hidalgo, M. Victoria Acedo, Tomás Ortiz, Antonio Oliviero

191

Complications and Risk Factor Analysis of Ommaya Reservoir Placement in 835 Patients

Rory R. Mayer, John Matthew Debnam, Dima Suki, Ryan Seiji Kitagawa, Ian E. McCutcheon, Morris Groves, Raymond Sawaya, Jeffrey S. Weinberg

★ SYNTHES SKULL BASE AWARD

192

Transsphenoidal Resection of Sellar Tumors Using High Field Intraoperative MRI

Nicholas J. Szerlip, Dimitris G. Placantonakis, Yi-Chen Zhang, David Rubin, Marc Alan Goldman, Sasan Karimi, Viviane S. Tabar

193

Withdrawn

194

Withdrawn

195

Factors Associated with Delay to Pituitary Adenoma Diagnosis in Patients with Visual Loss

Arman Jahangiri, Kathleen L. Lamborn, Lewis Blevins, Sandeep Kunwar, Manish Kumar Aghi

196

Results of A Pilot Study of Vaccinations with HLA-A2-Restricted Glioma Antigen-Peptides in Combination with Poly-ICLC for Children with Newly Diagnosed Malignant Brain Stem Gliomas, Non-Brainstem High-Grade Gliomas, or Recurrent Unresectable Gliomas

Ian F. Pollack, Regina Jakacki, Lisa H. Butterfield, Hideho Okada

197

Protein Phosphatase 2A Mediates Dormancy of Hypoxic Glioblastoma Multiforme-derived Tumor Stem-like Cells

Christoph Hofstetter, Demirkan Gursel, Lynn Mubita, Ramana Gorrepati, Eric C. Holland, John Andrew Boockvar

198

Obstetric Outcomes in Pregnant Women with the Neurofibromatosis Tumor Suppressor Syndrome

Anna R. Terry, Frederick George Barker, Lisa Leffert, Brian Bateman, Scott Plotkin

199

MRI Measurements of Oxygen Extraction Fraction in Patients with Metastatic Tumors Undergoing Stereotactic Radiosurgery Treatment

Sarah C. Jost, Keith M. Rich, Parinaz Massoumzadeh, Josh Shimony, Dimitriy Yablonskiy, Tammie Benzinger

200

Withdrawn

201

Coherent Raman Scattering Microscopy for Brain Tumor Surgery

Daniel A. Orringer, Chris Freudiger, Tom Chen, Geoffrey Young, X Sunney Xie, Oren Sagher

202

Craniopharyngioma Cell Growth Can Be Promoted by GH and Inhibited by Tamoxifen: Involvement of GH Related Receptors

Qiang Li, Chao You, Liang Liu, Zhengxi Rao, Xiutian Sima, Liangxue Zhou, Jianguo Xu

203

Inhibition of Cadherin-mediated Neurite Outgrowth in Human Glioblastoma Cells via Treatment with a Recombinant Cadherin Ectodomain Fusion Protein

Christopher Paul Cifarelli

204

Impact of Intraoperative Stimulation Brain Mapping on Glioma Surgery Outcome: A Meta-analysis

Philip C. De Witt Hamer, Santiago Gil Robles, Aeilko H. Zwinderman, Hugues Duffau, Mitchel S. Berger

205

A Prognostic and Predictive microRNA (miRNA) that Down-regulate MGMT in Glioblastoma

Wei Zhang, Deepa Kushwaha, Bob S. Carter, Tao Jiang, Clark C. Chen

206

Carotid Artery Injury During Endoscopic Endonasal Surgery: Incidence and Outcomes

Paul A. Gardner, Juan Carlos Fernandez-Miranda, Matthew Tormenti, Carl Snyderman

207

Gamma Knife Radiosurgery for Acromegaly

Xiaomin Liu, Hideyuki Kano, Douglas Kondziolka, John Flickinger, L. Dade Lunsford

208

Laser Interstitial Thermal Therapy Utilizing Continuous MRI Based Thermometry for Guidance During Ablation: Initial Experience with Intracranial Neoplasms

Gaurav Gupta, Rachid Assina, Shabbar F. Danish

209

Gamma-Knife Radiosurgery in Craniopharyngioma Management

Maria Elena Kusak, Jordi Pérez Bovet, Nuria E. Martinez Moreno, Roberto Martinez Alvarez

210

CNTF Receptor Subunit-alpha Is a Marker for Glioma Cancer Stem Cells and Correlates with Tumor Grade in Primary Brain Tumors

Jie Lu, Alexander Ksendzovsky, Chunzhang Yang, Gautam U. Mehta, Zhengping Zhuang, Russell R. Lonser

211

The Impact of Reporting Standard Guidelines on Publications of Vestibular Schwannomas Treated with Microsurgical Resection

Seunggu J. Han, Michael Oh, Michael Edward Sughree, Derick M. Aranda, Martin J. Rutkowski, Andrew T. Parsa

212

Regulatory T Cell Populations Increase After Naïve T-cell Co-culture with Glioblastoma Cell Lines Through the B7-H1 Mediated Pathway

Brian J. Jian, Yelena S. Fuks, Courtney Crane, Andrew T. Parsa

213

Withdrawn

214

Progression of Glioblastoma After Treatment with Bevacizumab Is Diffusely Infiltrative: Implications for Surgical Intervention

Orin Bloch, Brian J. Jian, Rajwant Kaur, Michael Prados, Susan Chang, Jennifer L. Clarke, Nicholas Butowski, Michael William McDermott, Mitchel S. Berger, Manish Kumar Aghi, Andrew T. Parsa

215

Microvessel Density in Fluorescence-Enhanced Brain Tumor Resection

Ziev B. Moses, Pablo A. Valdes, Keith Paulsen, Brent T. Harris, David W. Roberts

216

Radiographic Response of Brain Metastasis After Linear Accelerator Radiosurgery

Maryam Rahman, Joseph Bridger Cox, Yueh-Yun Chi, Jamal Carter, William A. Friedman, Gregory J. Murad

217

Usefulness of MET-PET, FLT-PET and FMISO-PET for Surgical Treatment of Gliomas

Takashi Tamiya, Keisuke Miyake, Masaki Okada, Nobuyuki Kawai

218

Outcome After Transphenoidal Transtubercular Approach for Supradiaphragmatic Craniopharyngiomas: A Retrospective Study of 33 Consecutive Monocentric Cases

Thomas Graillon, Frederic Castinetti, Thierry Brue, Regis Gras, Henry Dufour

219

Microsurgical Management of the Vestibular Schwannomas: The Importance of Maintaining Vestibular Capsule Plane to Preserve Neural Function

Akio Morita, Toshikazu Kimura, Tetsuro Sameshima

220

Treatment Modalities and Survival Outcomes for Intracranial Epidermoid Tumors with Malignant Transformation

Isaac Yang, Daniel Nagasawa, Marko Spasic, Andrew Yew, Winward Choy, Quinton Gopen

221

New Onset Cranial Nerve Deficits After Cyberknife Radiosurgery for Complex Skull Base Meningiomas

Samuel Kalb, Naveen Maramreddy, M. Yashar S. Kalani, Patricia Rojas-Castillo, Young-Don Kim, Robert F. Spetzler, Randall W. Porter

222

Scalp Tumors with Intracranial Extension in 60 Patients: Multidisciplinary Surgical Strategies and Outcomes

Rory R. Mayer, Daniel K. Fahim, Kriti Mohan, Justin Sacks, Ganesh Rao, David M. Adelman, Ian E. McCutcheon

223

The Role of Adjuvant Radiotherapy Dose in the Long-term Management of Primary Spinal Cord Ependymomas

Winward Choy, Won Kim, Daniel Nagasawa, Marko Spasic, Antonio A. F. De Salles, Isaac Yang

224

Withdrawn

225

Accuracy of Preoperative Navigated Brain Stimulation for Surgery in Central Region Tumors

Sandro M. Krieg, Ehab Shiban, Niels Buchmann, Jens Gempt, Bernhard Meyer, Florian Ringel

ORIGINAL SCIENCE PROGRAM

226

Aurora Kinase B as a Molecular Target for the Treatment of Malignant Brain Tumors

Roberto Jose Diaz, Christian Smith, James T. Rutka

227

Endoscopic Endonasal Compared with Microscopic Transsphenoidal and Open Transcranial Resection of Craniopharyngiomas: A Systematic Review of Outcomes

Ricardo Jorge Komotar, Dan Raper, Robert M. Starke, Vijay K. Anand, Theodore H. Schwartz

228

Endoscopic Endonasal vs. Open Transcranial Resection of Anterior Midline Skull Base Meningiomas: A Systematic Review of Outcomes

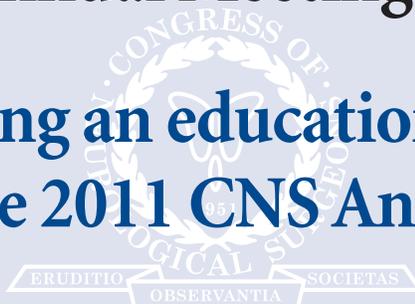
Ricardo Jorge Komotar, Dan Raper, Robert M. Starke, Vijay K. Anand, Theodore H. Schwartz

The Congress of Neurological Surgeons gratefully acknowledges



CNS Annual Meeting Leader

for providing an educational grant in
support of the 2011 CNS Annual Meeting.



Education and Innovation

AFTERNOON SESSIONS

SPECIAL COURSE I

2:00 – 3:30 PM

Room 152B

Concussion: A Perfect Storm and the Role of the National Football League

Course Directors: *H. Hunt Batjer, Richard G. Ellenbogen*

Learning Objectives: Upon completion, participants will be able to discuss the effect of sport related concussion on athletes of all ages and levels. They will also be able to describe the salient features of chronic traumatic encephalopathy. Additionally, they will be able to apply current guidelines for treatment and criteria for returning athletes to play after concussion to their therapy plans.

2:00 – 2:20 PM

Traumatic Brain Injury: The Roles of Organized Sports and Organized Medicine

H. Hunt Batjer

2:20 – 2:40 PM

Advocacy and Education

Richard G. Ellenbogen

2:40 – 3:00 PM

On Field Assessment and Return to Play

Margot Putukian

3:00 – 3:20 PM

Former Player Health Issues and Chronic Traumatic Encephalopathy

Mitchel S. Berger

3:20 – 3:30 PM

Questions and Answers

CONSENSUS SESSION I

2:00 – 3:30 PM

Room 154AB

Treatment of Metastatic Brain Tumors: What Is Standard of Care?

Moderator: *William A. Friedman*

Learning Objectives: Upon completion, course participants will understand state of the art medical, surgical, and radiation approaches to metastatic brain tumors. They will review the best evidence based literature and understand how to best interpret these studies and in turn, apply them to their treatment plans.



2:00 – 2:15 PM

Introduction and Instruction on Polling Device

William A. Friedman

2:15 – 2:30 PM

Surgical Management of Metastatic Tumors of the Brain

Raymond Sawaya

2:30 – 2:45 PM

Risks and Benefits of Whole Brain Radiation for Metastatic Brain Tumors

John M. Buatti

2:45 – 3:00 PM

radiosurgery for Metastatic Brain Tumors

William A. Friedman

3:00 – 3:15 PM

Problems with Design and Interpretation of Class I Studies as Applied to Metastatic Brain Tumors

Robert F. Harbaugh

3:15 – 3:25 PM

Audience Polling

3:25 – 3:30 PM

Discussion



The Art of Managing Complex Cranial Cases: A 3-D Video Presentation

Hall E **3:30 – 5:00 PM**

Course Director: *Aaron A. Cohen-Gadol*

Faculty: *William T. Couldwell, Duke S. Samson*

Learning Objectives: This 90 minute session will review the important technical nuances for complex cranial cases. Detailed surgical videos of different procedures (for tumors and vascular lesions) will be reviewed using 3D high definition surgical videos to maximize the learning experience for the viewers. The value of step-by-step technical tenets presented in these videos will be augmented by a panel of experts who will further describe their preference in technique and argue the pros and cons of different technical strategies. The following operations will be reviewed in a great detail: dissection of the Sylvian fissure, clip ligation of anterior circulation aneurysms, microvascular decompression for treatment of trigeminal neuralgia and hemifacial spasm, approaching lesions in the pineal region and posterior third ventricle, extended retromastoid craniotomy for resection of tumors involving cranial nerves, lateral suboccipital approach for removal of meningiomas located in the craniocervical junction, and low and high flow bypass techniques in handling vascular lesions. The novel nuances of technique for handling these operations will be beneficial to the general neurosurgeon who deals with all facets of cranial surgery. Upon completion, participants will be able to plan related surgical techniques to minimize intraoperative complications.

Unyielding Progress: Carotid Stenting *Live Surgery from the GSS!*



Drs. L. Nelson Hopkins, III and Elad I. Levy address the application of stenting for carotid disease and present a live carotid stenting procedure, direct from the University at Buffalo Neurosurgery via telemedicine.

Tuesday, October 4 10:00 – 10:30 AM Hall E

What is Standard of Care? Weigh In During the CNS Consensus Sessions!

Share your perspective on the optimum management of these disorders and build consensus among your colleagues on the best application of surgical strategies in a variety of clinical scenarios.

Treatment of Metastatic Brain Tumors

Consensus Session I

Room 154AB

Monday, October 3

See page 76



Management of Low Back Pain

Consensus Session II

Room 152B

Wednesday, October 5

See page 90





*“To strive, to seek, to find,
and not to yield”*

-Alfred, Lord Tennyson

Tuesday, October 4 Program Highlights

- | | |
|-------------------|--|
| 9:00 AM – 5:00 PM | ★ Exhibit Hall Open |
| 10:00 – 10:30 AM | ★ Live Surgical Presentation
Unyielding Progress: Carotid Stenting
(Findings and Practice) |
| 10:35 – 11:30 AM | ★ Music and the Mind Symposium
<i>Jeffrey Kahane, Charles J. Limb,
Margaret Batjer</i> |
| 2:00 – 3:30 PM | ★ Special Course II: Guidelines and
Clinical Evidence Update
★ Operative <i>NEUROSURGERY</i>[®] |
| 3:30 – 4:30 PM | ★ CNS Annual Business Meeting |
| 3:30 – 5:00 PM | ★ Wine & Cheese Reception with the
CNS Exhibitors |
| 5:00 – 6:00 PM | ★ CNS Resident SANS Challenge
Championship Round |
| 6:00 – 7:00 PM | ★ CNS Resident Recruitment Social |
| 6:30 – 8:30 PM | ★ Dinner Seminar I: Low Grade Glioma
★ Dinner Seminar II: Controversies in the
Treatment of Cervical Spondylotic
Myelopathy |

General Scientific Session II

7:00 – 11:30 AM Walter E. Washington Convention Center Hall E

Tuesday, October 4

General Scientific Session II

Presiding Officer: Daniel K. Resnick

Moderators: Steven N. Kalkanis, Russell R. Lonser

Learning Objectives: Upon completion, participants will be able to evaluate the latest classification schemes that have been used to characterize gliomas and spinal instability from metastatic disease. They will also be able to consider the latest advances in endoscopic techniques for accessing pathology of the ventricular system and the newest research on the effect of music on brain physiology.

7:00 – 7:05 AM

Introduction and Disclosures

Daniel K. Resnick

7:05 – 7:22 AM

Seeking Better Treatment: Endoscopic Third Ventricular Surgery

Alan R. Cohen

7:22 – 7:39 AM

Seeking New Understanding: Genome Based Classification of Gliomas

Linda M. Liau



7:39 – 7:59 AM

Honored Guest Lecture

3-D Overcoming a Bad Outcome: Thoughts from a Colleague

H. Hunt Batjer

7:59 – 8:16 AM

Seeking Consensus: Classifying Neoplastic Spinal Instability

Mark H. Bilsky

8:16 – 8:33 AM

Seeking New Solutions: Stimulation of Diseased Brain Circuits in Depression

Ali R. Rezai

8:33 – 8:35 AM

Introduction of Spanish Neurosurgical Society President Miguel Manrique

Anil Nanda



8:35 – 8:50 AM

Spanish Neurosurgical Society Presidential Lecture

Epilepsy Surgery: Resection or Modulation

Miguel Manrique

8:50 – 8:53 AM

NeuroPoint Alliance Update

Anthony L. Asher

8:53 – 8:55 AM

CNS Fellowship Awards Presentation

Steven N. Kalkanis

8:55 – 8:56 AM

Presentation of Neurosurgical Forum Winners

Ganesh Rao

8:56 – 9:00 AM

Distinguished Service Award Presentation to Mark E. Linskey

Anthony L. Asher

9:00 – 10:00 AM
Beverage Break with Exhibitors

10:00 – 10:30 AM

Live Surgical Presentation

Unyielding Progress: Carotid Stenting (Findings and Practice)

L. Nelson Hopkins III, Elad I. Levy

10:30 – 10:35 AM

Introduction to the Music and the Mind Symposium

H. Hunt Batjer, Margaret Batjer



10:35 – 11:30 AM

Special Symposium

Music and the Mind

Jeffrey Kahane, Charles J. Limb, Margaret Batjer

11:30 AM – 12:00 PM
Break with Exhibitors

All Luncheon Seminars include a plated lunch served in the seminar room. Luncheon Seminar fees are \$75 each (\$60 for Residents/Fellows/Medical Students/Nurses/Physician Extenders).

T16 Room 140A
Initial and Long-Term Management of Patients with Chiari Malformations and Syringomyelia

Moderator: Richard G. Ellenbogen
Faculty: Samuel Henry Cheshier, Neil Feldstein, John D. Heiss
Learning Objectives: Upon completion, participants will be able to consider various medical and surgical treatment options in the management of Chiari I malformations, their controversies and the differences in management of pediatric versus adult Chiari I malformations. Participants will also be able to incorporate new research relevant to the treatment of Chiari I malformations and syringomyelia into treatment plans.

T17 Room 145A
Guidelines for Surgical Management Lumbar Spine Surgery

Moderator: Charles L. Branch, Jr.
Faculty: Sanjay S. Dhall, Iain H. Kalfas, Jean-Paul Wolinsky, Eric J. Woodard
Learning Objectives: Upon completion, participants will be able to assess the current literature on surgical treatment of degenerative lumbar spine disease. Participants will also be able to analyze the indications and expected outcomes for various lumbar spine surgical procedures to improve their treatment plans.

T18 Room 140B
Guidelines for Surgical Management of Cervical Spondylotic Myelopathy and OPLL

Moderator: Paul C. McCormick
Faculty: Michael W. Groff, Michael G. Kaiser, Paul K. Maurer, Daniel K. Resnick
Learning Objectives: Upon completion, participants will be able to assess the differential diagnosis of cervical spondylotic myelopathy and evaluate the treatment options available. Participants will also be able to analyze outcomes of treatment in patients with cervical spondylotic myelopathy.

T19 Room 146A
Managing Difficult Surgical Scenarios in Spinal Surgery

Moderator: Edward C. Benzel
Faculty: J. Patrick Johnson, Michele M. Johnson, Michael P. Steinmetz, Gregory R. Trost
Learning Objectives: Upon completion, participants will be able to identify operative events dictating the need for intraoperative salvage techniques in spinal surgery and plan for the specific techniques necessary to rectify intraoperative difficulties.

T20 Room 143B
Multidisciplinary Management Strategies for Unruptured Aneurysms

Moderator: Robert A. Solomon
Faculty: C. Michael Cawley, Robert M. Friedlander, Giuseppe Lanzino, Michael T. Lawton, Jose Maria Roda
Learning Objectives: Upon completion, participants will be able to discuss the epidemiology and natural history of unruptured intracranial aneurysms and construct appropriate treatment algorithms for these lesions.

T21 Room 143C
Advances in the Management of Trigeminal Neuralgia and Facial Pain

Moderator: Kim J. Burchiel
Faculty: John Y.K. Lee, Robert M. Levy, Francisco J. Robaina, Konstantin V. Slavin
Learning Objectives: Upon completion, participants will be able to incorporate surgical, percutaneous, radiosurgical and neuromodulation options for trigeminal neuralgia and facial pain syndromes into practice while recognizing the complications and outcomes with these approaches.

T22 Room 144A
Surgery and Radiosurgery for Epilepsy

Moderator: Nicholas M. Barbaro
Faculty: Warren W. Boling, Jean M. Regis, Jose Rumia, Ashwini Dayal Sharan
Learning Objectives: Upon completion, participants will be able to describe the clinical features of seizure disorders and be able to incorporate various techniques in the preoperative, intraoperative and postoperative management of patients with epilepsy into their treatment plans.

T23 Room 144B
Staying Current in the Management of the Neurotrauma Patient

Moderator: Geoffrey T. Manley
Faculty: Odette Harris, Roger Hartl, Ruth Prieto, Alex B. Valadka
Learning Objectives: Upon completion, participants will be able to update treatment strategies with the latest technological advancements in managing patients with traumatic brain injury and describe how these new technologies can improve outcomes.

T24 Room 144C
Pushing the Limits of Skull Base Approaches

Moderator: Albert L. Rhoton, Jr.
Faculty: Miguel A. Arraez Sanchez, Franco DeMonte, Jacques J. Morcos, Chandra N. Sen
Learning Objectives: Upon completion, participants will be able to discuss the common pathologies affecting the skull base, add the various surgical approaches available for treating skull base lesions to current therapies and identify the available surgical adjuncts in managing patients with skull base lesions.

T25

Room 146B
Evidence-Based Management of Brain Metastases

Moderator: *Raymond Sawaya*

Faculty: *David W. Andrews, Randy L. Jensen, Steven N. Kalkanis, Steven A. Toms*

Learning Objectives: Upon completion, participants will be able to discuss the current status of research pertaining to the treatment of brain metastases and incorporate surgical and radiosurgical treatment options appropriate for treating intracranial metastases, their complications and results into their current management strategies.

T26

Room 146C
What's New in Pituitary Surgery

Moderator: *Nelson M. Oyesiku*

Faculty: *Edward R. Laws, Ian E. McCutcheon, Edward H. Oldfield, Michael Powell*

Learning Objectives: Upon completion, participants will identify the technical fundamentals and nuances in performing pituitary surgery, and integrate new techniques and advances in treatment to their current practice options.

T27

Room 147A
Surgical Resection of Low-Grade Gliomas: Current Strategies and Controversies

Moderator: *Mitchel S. Berger*

Faculty: *Susan Chang, Hughes Duffau, Santiago Gil-Robles, Nader Sanai*

Learning Objectives: Upon completion, participants will be able to compare various surgical and medical modalities appropriate for the treatment of low grade gliomas, as well as current research pertaining to the management of these tumors to their current treatment strategies.

T28

Room 147B
Treatment Dilemmas: Normal Pressure Hydrocephalus and Pseudotumor Cerebri

Moderator: *Daniele Rigamonti*

Faculty: *Harold L. Rekate, Elizabeth C. Tyler-Kabara, Daniel Yoshor*

Learning Objectives: Upon completion, participants will be able to implement the diagnosis and treatment of patients with normal pressure hydrocephalus and pseudotumor cerebri.

T29

Room 149AB
Spine Surgery in the Geriatric Population: Current Strategies and Controversies

Moderator: *Mark N. Hadley*

Faculty: *Christopher P. Ames, Nancy E. Epstein, Frank La Marca, Todd D. McCall*

Learning Objectives: Upon completion, participants will be able to discuss the characteristics of spinal disorders unique to elderly patients and identify surgical considerations for treating spinal disorders in the aging population.

T30

Room 152A
Spine and Peripheral Nerve Injuries in Sports

Moderator: *Douglas L. Brockmeyer*

Faculty: *Langston T. Holly, Nicholas Theodore, Christopher J. Winfree*

Learning Objectives: Upon completion, participants will be able to discuss the unique spine injuries associated with various sporting activities, describe surgical and non-surgical management of sports related spinal injuries, and identify the variability in sports related spine and spinal cord injuries across different age groups.

T31

Room 151B
Incorporating Novel Technologies into Your Neurosurgical Practice 

Moderator: *David J. Langer*

Faculty: *Mario Ammirati, Pascal Jabbour, Neil A. Martin*

Learning Objectives: This course will introduce participants to commercially available “off the shelf” technology which can be easily utilized in an academic or private practice. It will include a user demonstration as well as a highlight of the breadth of new computer technology capabilities. Additionally, it will address “real world” experience, with an emphasis on the benefits and pitfalls of their adoption. Likely future advances and consequential impacts on medical practice will be covered as well. Upon completion, participants will be able to formulate strategic treatment plans involving the new technology referenced in this course.

T32

Room 143A
Finding the Right Job: Identifying the “Best Fit” Practice for Your Needs 

Moderator: *John K. Ratliff*

Faculty: *Devin V. Amin, Chaim B. Colen, Stefan A. Mindea*

Learning Objectives: Upon completion, participants will be able to customize their job search to best meet their practice expectations by learning to identify applicable, desirable characteristics and strengthening their negotiation skills.

AFTERNOON SESSIONS

SPECIAL COURSE II

2:00 – 3:30 PM

Room 152B

Guidelines and Clinical Evidence Update

Course Director: *Mark E. Linskey*

Learning Objective: Upon completion, participants will be able to strategize various treatments in the subspecialties of neurosurgery including, stereotactic and functional, cerebrovascular, spinal surgery, and neuro-oncologic surgery and support their use with the best available evidence.

2:00 – 2:10 PM

Introduction

Mark E. Linskey

2:10 – 2:25 PM

Stereotactic and Functional Neurosurgery

Joshua M. Rosenow

2:25 – 2:30 PM

Discussion

2:30 – 2:45 PM

Cerebrovascular Surgery

Byron Gregory Thompson

2:45 – 2:50 PM

Discussion

2:50 – 3:05 PM

Spine and Peripheral Nerves

Daniel K. Resnick

3:05 – 3:10 PM

Discussion

3:10 – 3:25 PM

Tumors

Steven N. Kalkanis

3:25 – 3:30 PM

Discussion

Section on

Cerebrovascular Surgery

2:00 – 3:30 PM

Room 150A

E Pluribus Unum: Out of Many, One: Neurovascular Surgery

Moderators: *Nicholas Bambakidis, Ketan R. Bulsara*

Learning Objectives: Upon completion, participants will be able to incorporate practical lessons learned into their management plans related to neurovascular problems.

2:00 – 2:05 PM

Introduction of Drake Lecturer Fredric B. Meyer

E. Sander Connolly

2:05 – 2:30 PM

Drake Lecture

Fredric B. Meyer

2:30 – 2:45 PM

Complications Associated with Flow Diverters

Henry H. Woo

2:45 – 3:00 PM

How My Management of AVMs Changed in the Microsurgery/Endovascular/Radiosurgery Era

Duke S. Samson

3:00 – 3:15 PM

What Is the Next Great Endovascular Treatment for the Management of Acute Ischemic Stroke?

Adnan H. Siddiqui

3:15 – 3:30 PM

CV Section and SNIS: Two Societies with Convergent Goals

Michael J. Alexander



Operative NEUROSURGERY®

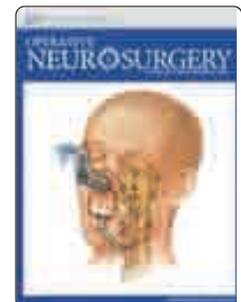
Operative Neurosurgery has been published as a quarterly supplement of *NEUROSURGERY*® since January 2005 with the intent to convey the “craft” of neurosurgery.” This publication documents the nuances of how master surgeons manage simple and complex neurosurgical procedures.

This session, led by *NEUROSURGERY*® Editor-in-Chief, Nelson M. Oyesiku, MD, will expand on the success of the print form of *Operative Neurosurgery* by showcasing narrated video of novel neurosurgical techniques.

Moderators: *Brian T. Ragel, Garnette R. Sutherland*

Learning Objectives: Upon completion, participants will be able to discuss the latest surgical techniques available for managing specific neurological pathologies. Information will be delivered via operative examples with guidance provided by experts in neurosurgery.

Hall E 2:00 – 3:30 PM



2:00 – 2:05 PM

Introduction

Nelson M. Oyesiku

2:05 – 2:25 PM

Michael T. Lawton

2:25 – 2:45 PM

John Diaz Day

2:45 – 3:05 PM

Christopher I. Shaffrey

3:05 – 3:25 PM

Garnette Sutherland

AFTERNOON SESSIONS

Section on Disorders of the Spine and Peripheral Nerves 2:00 – 3:30 PM
Room 151A

Complications in Spinal Surgery: Incidence, Avoidance and Treatment

Moderators: Frank La Marca, Praveen V. Mummaneni

Learning Objectives: Participants will have the opportunity to be involved in live discussion of complication scenarios with faculty panel. Upon completion, participants will be able to prepare for common complications associated with several specific spinal operations by identifying risk factors, necessary precautions for avoidance and distinguishing management and treatment protocol.

2:00 – 2:15 PM

Cervical Fusion Operations: Incidence, Avoidance and Treatment of Adjacent Segment Degeneration

Michael W. Groff

2:15 – 2:30 PM

XLIF/DLIF Procedures: Incidence and Avoidance of Complications

Adam S. Kanter

2:30 – 2:45 PM

Multilevel Thoracolumbar Fusion for Deformity: Avoidance and Treatment of Sagittal Imbalance

Christopher I. Shaffrey

2:45 – 3:00 PM

Multilevel Lumbar Surgery for Degenerative Disease: Incidence, Avoidance and Treatment of Post Laminectomy Kyphosis and/or Proximal Junctional Kyphosis

Tyler R. Koski

3:00 – 3:15 PM

Arthrodesis in the Era of Minimally Invasive Fusion Procedures and Biologic Graft Augmentation: Incidence of Pseudoarthrosis and Treatment

Michael Y. Wang

3:15 – 3:30 PM

Presentation of a Case Study: What Went Wrong? How Could It Have Been Avoided? What Can Be Done Now?

Daniel M. Sciubba

Section on Stereotactic and Functional Neurosurgery 2:00 – 3:30 PM
Room 154AB

Costs and Benefits of DBS Surgery

Moderators: Aviva Abosch, Konstantin V. Slavin

Learning Objectives: Upon completion, participants will be able to analyze the clinical benefits of deep brain stimulation in the context of the current healthcare environment.

2:00 – 2:30 PM

Quality of Life Following Deep Brain Stimulation

Kelly D. Foote

2:30 – 3:00 PM

Costs of Deep Brain Stimulation: A Neurosurgeon's Perspective

Emad N. Eskandar

3:00 – 3:30 PM

Paying for Cutting-edge Care and Therapeutic Innovation in the Current Healthcare Environment

David Charles



**WINS is proud to announce
an evening with
CNN Chief Political Correspondent,
Candy Crowley**

Tuesday, October 4 6:00 PM

**Renaissance Washington, DC Downtown Hotel
Renaissance Ballroom East**

Tuesday, October 4

AFTERNOON SESSIONS

Section on Tumors

2:00 – 3:30 PM

Room 150B

Genomic Alterations in Primary Brain Tumors

Moderators: Daniel P. Cahill, Ricardo J. Komotar

Learning Objectives: This course will stress the importance of histopathologic sampling for accurate molecular diagnosis and prognosis. It will cover the four molecular groups of gliomas: BRAF mutant, IDH mutant, 1p/19q co-deleted tumors and glioblastoma. Upon completion, participants will be able to integrate this molecular stratification into clinical decision-making and the planning of ongoing clinical trials.

2:00 – 2:02 PM

Overview: Why Genomics Matter to the Clinical Neurosurgeon

Daniel P. Cahill

2:02 – 2:22 PM

Low Grade Tumors with BRAF Mutations: Clinical Implications

Ian F. Pollack

2:22 – 2:42 PM

IDH Tumors: Sharpening Diagnostics for High Grade Gliomas

Donald Will Parsons

2:42 – 3:02 PM

Importance of 1p/19q Co-deletion in Clinical Practice and Clinical Trials

Michael A. Vogelbaum

3:02 – 3:22 PM

Multigene Predictor of Glioma Outcome

Kenneth D. Aldape

3:22 – 3:30 PM

RTOG and ACTION: An Update on Brain Tumor Clinical Trial Consortia and Neurosurgery

Manish K. Aghi

3:30 – 4:30 PM

Room 145B

CNS Annual Business Meeting

5:00 – 6:00 PM

Room 202A

CNS Resident SANS Challenge
Championship Round

6:00 – 7:00 PM

Room 202B

CNS Resident Recruitment Social

Join Us...



*Wine and Cheese
Reception
With the CNS Exhibitors*

Tuesday, October 4

3:30 - 5:00 PM

*Exhibit Hall
Hall D*

EVENING SESSIONS

Dinner Seminar I **6:30 – 8:30 PM** **\$190**

NEW **Low Grade Glioma**
Moderator: *Alfredo Quinones-Hinojosa*
Faculty: *Jaishri Blakeley, Michael William McDermott, Joseph M. Piepmeier*

Learning Objectives: Participants will be able to discuss the latest developments in the diagnosis and treatment of low grade glioma. Specifically, the roles of surgery, radiation and chemotherapy will be described.

The Source

The Source has received a #3 ranking on Washingtonian Magazine’s “Top 100 Restaurants” list and offers guests a menu that features modern interpretations of Asian dishes.

Dinner Seminar includes a 3-course plated dinner and wine service. Transportation will depart the Renaissance Washington, DC Downtown Hotel at 6:00 PM sharp.

Earn additional CME with Dinner Seminar SANS!

6:30 – 6:45 PM
Introductory Remarks

6:45 – 7:15 PM
Role of Surgery in the Management of Low Grade Glioma
Joseph M. Piepmeier

7:15 – 7:45 PM
Role of Chemotherapy in the Management of Low Grade Glioma
Jaishri Blakeley

7:45 – 8:15 PM
Role of Radiation in the Management of Low Grade Glioma
Michael William McDermott

8:15 – 8:30 PM
Discussion

Attention Residents!

Make new connections with recruiters and physicians looking to add to their practice at the 2011 CNS Resident Recruitment Social.

Tuesday, October 4 ★ 6:00 – 7:00 PM ★ Room 202B



Dinner Seminar II **6:30 – 8:30 PM** **\$190**

NEW **Controversies in the Treatment of Cervical Spondylotic Myelopathy**
Moderator: *Paul C. McCormick*
Faculty: *Michael G. Fehlings, Zoher Ghogawala, Paul K. Maurer*

Learning Objectives: Upon completion, learners will be able to understand the importance of repetitive motion and shear injury as pathophysiological mechanisms underlying cervical spondylotic myelopathy (CSM), identify the major morbidities following surgery for CSM: dysphagia, C5 palsy, neck pain, etc., plan to utilize the validated outcome measures (SF-36, Neck Disability Index, etc) for assessing functional outcome following surgery for CSM, and recognize the importance of collecting utility measures (e.g. EQ-5D) and healthcare costs in order to perform an economic analysis for different treatment options for CSM.

Occidental Grill & Seafood

Continuing its historical tradition of providing Washington, DC with great food and hospitality, the Occidental remains a place where notables set out to eat and “Where Statesmen Dine”.

Dinner Seminar includes a 3-course plated dinner and wine service. Transportation will depart the Renaissance Washington, DC Downtown Hotel at 6:00 PM sharp.

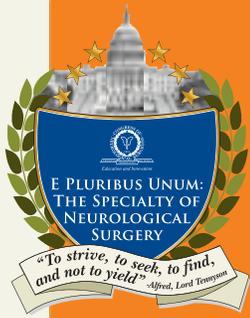
6:30 – 6:45 PM
Introductory Remarks

6:45 – 7:15 PM
Ventral vs. Dorsal Surgery for CSM: Complications and Outcomes
Michael G. Fehlings

7:15 – 7:45 PM
Comparative Effectiveness for CSM: What is the Best Operation for CSM?
Zoher Ghogawala

7:45 – 8:15 PM
What is the Role of Laminoplasty in the Treatment of CSM?
Paul K. Maurer

8:15 – 8:30 PM
Discussion



*“To strive, to seek, to find,
and not to yield”*

-Alfred, Lord Tennyson

Wednesday, October 5 Program Highlights

- | | |
|-------------------|--|
| 9:00 AM – 2:00 PM | ★ Exhibit Hall Open |
| 10:18 – 10:38 AM | ★ Neuro Casualties of Modern War
<i>Colonel Geoffrey S.F. Ling</i> |
| 11:03 – 11:30 AM | ★ SPORTS: The Hype and the Hypocrisy
<i>Frank Deford</i> |
| 2:00 – 3:30 PM | ★ NEW CNS Original Science Program
Multidisciplinary Oral Presentations |
| | ★ Consensus Session II: Management of
Low Back Pain: What is Standard of Care? |
| 6:30 – 8:30 PM | ★ Dinner Seminar III: Current
Management Strategies for Metastatic
Spine Tumors |
| | ★ Dinner Seminar IV: Cervical and
Lumbar Arthroplasty |
| 7:00 PM | ★ CNS International Reception
Smithsonian American Art Museum and
National Portrait Gallery |

General Scientific Session III

7:00 – 11:30 AM Walter E. Washington Convention Center Hall E

General Scientific Session III

Presiding Officer: *Nathan R. Selden*

Moderators: *Ashok R. Asthagiri, Julie G. Pilitsis*

Learning Objectives: Upon completion, participants will be able to update their patient treatment plans based on the latest developments in techniques used for pediatric spinal fusion, robotic-interfaces for brain-injured patients, and the basic biology of peripheral nerve repair and the use of prosthesis for patients with injured limbs.

7:00 – 7:05 AM

Introduction and Disclosures

Nathan R. Selden

7:05 – 7:07 AM

Introduction of Japanese Congress of Neurological Surgeons President Kuniaki Ogasawara

Christopher C. Getch

7:07 – 7:22 AM

Japanese Congress of Neurological Surgeons Presidential Lecture

Kuniaki Ogasawara

7:22 – 7:39 AM

Pediatric Spine Fusion and Instrumentation

Douglas L. Brockmeyer

7:39 – 7:41 AM

Introduction of Special Lecturer Leigh R. Hochberg

Julie G. Pilitsis



7:41 – 7:58 AM

Special Lecture

Seeking to Restore Function: Human-Robotic Interface

Leigh R. Hochberg

7:58 – 8:13 AM

Unyielding Progress: Delivering Neurosurgical Care to the Developing World

Ashwin Viswanathan

8:13 – 8:30 AM

Striving To Better Understand: The Biology of Peripheral Nerve Repair

Rajiv Midha

8:30 – 8:47 AM

Seeking New Paradigms in Epilepsy: Stereotactic Radiosurgery for Epilepsy

Jean M. Regis

8:47 – 8:50 AM

American Association of Neurological Surgeons Update

Paul C. McCormick

8:50 – 8:55 AM

Presentation of CNS Founders' Laurel to Ralph G. Dacey, Jr.

P. David Adelson

8:55 – 9:00 AM

Presidential Acknowledgement

Christopher C. Getch

9:00 – 10:00 AM
Beverage Break with Exhibitors

10:00 – 10:15 AM

NEUROSURGERY®: The State of the Journal

Nelson M. Oyesiku

10:15 – 10:18 AM

Introduction of Special Lecturer Colonel Geoffrey S.F. Ling

Colonel Leon E. Moores



10:18 – 10:38 AM

Special Lecture

Neuro Casualties of Modern War

Colonel Geoffrey S.F. Ling



10:38 – 10:58 AM

Honored Guest Lecture

Honoring Our Public Responsibility: Creating Milestone and Matrix Based Training in an Era of Duty Hour Restrictions

H. Hunt Batjer

10:58 – 11:03 AM

Introduction of Julian T. Hoff Lecturer Frank Deford

Nathan R. Selden



11:03 – 11:30 AM

Julian T. Hoff Lecture

SPORTS: The Hype and the Hypocrisy

Frank Deford

11:30 AM – 12:00 PM
Exhibit Hall



11:30 AM Book Signing with Frank Deford
in the Exhibit Hall – Booth 1221!

Wednesday, October 5

All Luncheon Seminars include a plated lunch served in the seminar room. Luncheon Seminar fees are \$75 each (\$60 for Residents/Fellows/Medical Students/Nurses/Physician Extenders).

W32 Room 140A
Contemporary Management of Traumatic Spine and Spinal Cord Injury

Moderator: Michael G. Fehlings
Faculty: Daryl R. Fourney, Barth A. Green, Jack Jallo, Michael P. Steinmetz
Learning Objectives: Upon completion, participants will be able to discuss advances in the medical treatment of traumatic spinal cord injury, as well as state of the art surgical management of cervical spine trauma and spinal cord injury. Participants will also be able to write protocols for identifying and assessing cervical spine injury in the comatose patient.

W33 Room 140B
Treatment of Cervical Radiculopathy: Anterior vs. Posterior Approaches

Moderator: John A. Jane, Sr.
Faculty: Anthony J. Caputy, Richard G. Fessler, Paul K. Maurer, Russ P. Nockels
Learning Objectives: Upon completion, participants will be able to analyze their current treatment strategy for Cervical Radiculopathy by identifying the advantages and disadvantages of the various surgical approaches for the management of cervical disc herniation with radiculopathy, including the anterior foraminotomy approach, as well as more traditional approaches.

W34 Room 143C
Open vs. Endovascular Management of Cerebral Aneurysms

Moderator: Arthur L. Day
Faculty: Peng Roc Chen, Aaron S. Dumont, David J. Langer, John Allen Wilson
Learning Objectives: Upon completion, participants will be able to discuss emerging technologies and innovations in open vascular neurosurgery, list emerging technologies and innovations in endovascular neurosurgery, and strategize how to apply these technologies to managing patients with neurovascular diseases.

W35 Room 144A
Current Strategies for Management of Pediatric Brain Tumors

Moderator: James T. Rutka
Faculty: Frederick A. Boop, Michael H. Handler, John S. Myseros, R. Michael Scott
Learning Objectives: Upon completion, participants will be able to identify the various types of pediatric brain tumors and consider current modalities of surgical and medical therapy for them when reviewing their current management strategies.

W36 Room 144B
Pediatric Spine Management (Traumatic and Congenital)

Moderator: David W. Pincus
Faculty: Richard C. E. Anderson, Paul Klimo, Dachling Pang, Jonathan R. Slotkin
Learning Objectives: Upon completion, participants will be able to identify the various traumatic spine and spinal cord injuries and the various congenital spine and spinal cord diseases affecting the pediatric population. Participants will also be able to add various surgical and non-surgical management techniques available for managing traumatic and congenital spine and spinal cord injuries in the pediatric population to therapy plans.

W37 Room 144C
Lessons Learned: Avoidance and Management of Complications of Aneurysm Surgery

Moderator: Giuseppe Lanzino
Faculty: Ali F. Krisht, Michael T. Lawton, Andreas Raabe
Learning Objectives: Upon completion, participants will be able to discuss the common complications in aneurysm surgery, describe management of complications occurring during aneurysm surgery, and list the different techniques available to manage complications with adjunctive technologies.

W38 Room 145A
Peripheral Nerve Entrapment Syndromes: Diagnosis and Management

Moderator: Eric L. Zager
Faculty: Nicholas M. Boulis, W. Jeffrey Elias, Line Jacques, Rajiv Midha
Learning Objectives: Upon completion, participants will be able to discuss basic nerve entrapment syndromes and their medical and surgical management, as well as indications and techniques for peripheral nerve surgery. Participants will also be able to list strategies for augmenting peripheral nerve surgery in their practices.

W39 Room 145B
Head Injury: Current Management Strategies

Moderator: Shelly D. Timmons
Faculty: Patricia B. Raksin, Eve C. Tsai, Alex B. Valadka
Learning Objectives: Upon completion, participants will be able to review their strategies for managing traumatic brain injury by assessing current practice standards, practical issues surrounding management, and the unique challenges facing patients with traumatic brain injury.

W40 Room 147A
**Complication Avoidance and Management
 in Skull Base Surgery**

Moderator: Jeffrey J. Olson

Faculty: Ossama Al-Mefty, Bartolome Bejarano, Joung H. Lee, Laligam N. Sekhar

Learning Objectives: Upon completion, participants will be able to describe the common complications occurring in skull base surgery, and identify various techniques available for managing complications during skull base surgery and the role of adjunctive technologies in managing complications during and after skull base surgery.

W41 Room 147B
Advances in Malignant Glioma Treatment

Moderator: Alfredo Quinones-Hinojosa

Faculty: Jeffrey N. Bruce, Jose Campos, David W. Roberts, Mark Edwin Shaffrey

Learning Objectives: Upon completion, participants will be able to discuss current and emerging techniques for treating patients with malignant gliomas and consider the impact on treatment strategies for these patients.

W42 Room 146C
**Neuro-Oncology and Radiosurgery:
 Current Indications and Controversies**

Moderator: Michael William McDermott

Faculty: Steven D. Chang, John G. Golfinos, Jason P. Sheehan

Learning Objectives: Upon completion, participants will be able to compare their current treatment plans to evidence in the medical literature evaluating the use of radiosurgery for neurosurgical disorders including tumors of the brain and spine.

W43 Room 146B
**Practical Approaches for Maximizing
 Reimbursement**

Moderator: Joseph S. Cheng

Faculty: Jeffrey W. Cozzens, Holly Gilmer, Alan M. Scarrow, Clarence B. Watridge

Learning Objectives: Upon completion, participants will be able to discuss the pressures in the current economic environment affecting medical reimbursement, design strategies for maximizing reimbursement in the existing economic environment and identify approaching challenges in medical reimbursement.

W44 Room 146A
**Innovations in the Management of
 Intracerebral Hemorrhage**

Moderator: Issam A. Awad

Faculty: E. Sander Connolly, Robert L. Dodd, Neil A. Martin, Mario Zuccarello

Learning Objectives: Upon completion, participants will be able to discuss natural history of intracerebral hemorrhage, identify traditional surgical and new minimally invasive options for management of intracerebral hemorrhage and discuss indications, outcomes, and complications from these approaches.

W45 Room 149AB
**Comprehensive Management Strategies for
 the Treatment of Movement Disorders**

Moderator: Robert E. Gross

Faculty: Aviva Abosch, Juan Barcia, Michael Gordon Kaplitt, Paul S. Larson

Learning Objectives: Upon completion, participants will be able to consider the indications for deep brain stimulation for movement disorder and outcomes and risks related to deep brain stimulation when assessing their management strategies for the treatment of movement disorders.

W46 Room 152A
**Multidisciplinary Management of
 Spinal Metastases** 

Moderator: Ziya L. Gokaslan

Faculty: Mark H. Bilsky, Laurence D. Rhines, Meic H. Schmidt, Narayan Sundaresan

Learning Objectives: Upon completion, participants will be able to incorporate current diagnostic and treatment strategies for metastatic tumors of the spine into their treatment plans. They will also be able to conceptualize a framework for decision making about surgery, conventional radiation, radiosurgery, and vertebral augmentation for these disorders.

AFTERNOON SESSIONS



ORIGINAL SCIENCE PROGRAM II

2:00 – 3:30 PM
Room 151B

Multidisciplinary Oral Presentations

Moderators: *David O. Okonkwo, Martina Stippler*

Learning Objectives: Upon completion, participants will be able to discuss the findings of novel neurosurgical studies, critique the design and methodology of these studies, list important areas for further knowledge development and research and identify the most important ongoing clinical trials.

2:00 – 2:09 PM

981

The Differential Effect of Deep Brain Stimulation on Oculomotor Function in Parkinson's Disease Patients with STN or GPi Implants

Jared Fridley, Gareth John Adams, Ping Sun, Michelle York, Farah Atassi, Eugene Lai, Ashwin Viswanathan, Daniel Yoshor

2:09 – 2:18 PM

982

Clinical and Imaging Outcomes After a Fifteen Year Follow-up of Arteriovenous Malformations Treated with Gamma Knife Radiosurgery

Maria Elena Kusak, Laura Paul, Nuria E. Martínez, Jorge Gutiérrez, Germán Rey Portolés, Roberto Martínez Álvarez

2:18 – 2:27 PM

983

The Incidence of Pulmonary Embolism in Patients Treated with Spinal Fusion Procedures for Different Surgical Indications

Benjamin M. Zussman, Mitchell Gil Maltenfort, Ashwini Dayal Sharan, John K. Ratliff, James S. Harrop

2:27 – 2:36 PM

984

Open-label, Dose Confirmation Study of Interstitial 131I-chTNT-1/B Mab (Cotara®) for the Treatment of Glioblastoma Multiforme (GBM) at First Relapse

Deepak Kumar Gupta

2:36 – 2:45 PM

985

Vascular Targeting Enhancement of Radiosurgery for Cerebral Arteriovenous Malformations

Rajesh Reddy, Jacob M. Fairhall, Robert Smee, Marcus A. Stoodley

2:45 – 2:54 PM

986

Selective Increase in Tension in the C5 Contribution to the Upper Trunk with Positioning for ACDF

Vinay Somashekar, R. Scott Graham, Anthony Owusu

2:54 – 3:03 PM

987

A Multi-Epitope Pulsed Dendritic Cell Vaccine (ICT-107) Targeting Glioblastoma Cancer Stem Cells Reduces the Cancer Stem Cell Population in Recurrent Tumor and Is Associated with Increased Progression-free Survival

John S. Yu, Surasak Phuphanich, Christopher J. Wheeler, Jeremy D. Rudnick, Mia Mazer, Hongqiang Wang, Miriam Nuno, Jaime E. Richardson, Xuemo Fan, Jianfei Ji, Ray M. Chu, James Bender, Elma W. Hawkins, Keith L. Black

3:03 – 3:12 PM

988

Stent Assisted Coiling of Anterior Communicating Artery Aneurysms: A Single Center Experience in 19 Patients

John Christos Styliaras, David M. Hasan, Stavropoula I. Tjoumakaris, L. Fernando Gonzalez, Aaron S. Dumont, Robert H. Rosenwasser, Pascal Jabbour

3:12 – 3:21 PM

989

Total Disc Arthroplasty Results in Better Long Term Clinical Outcomes for Middle-Aged Patients with Two-Level Cervical Disc Disease

David A. Cavanaugh, Ajay Jawahar, Pierce D. Nunley, Domagoj Coric, Phillip A. Utter, Eubulus J. Kerr, Charles R. Gordon, Guy O. Danielson

3:21 – 3:30 PM

990

Rate of Periprocedural Thromboembolic vs. Hemorrhagic Complications Following Guglielmi Detachable Coil Embolization of Aneurysms in the Setting of Subarachnoid Hemorrhage

Dale Ding, Justin Hilliard, Kenneth Chan-Ying Liu

Consensus Session II

2:00 – 3:30 PM
Room 152B

Management of Low Back Pain: What Is Standard of Care?

Moderator: *Robert F. Heary*

Learning Objectives: Upon completion, participants will be able to discuss the optimum management of lumbar degenerative disease and plan a conceptual framework for the application of surgical strategies in a variety of clinical scenarios.



2:00 – 2:15 PM

Introduction and Instruction on Polling Device

Robert F. Heary

2:15 – 2:30 PM

Lumbar Fusion for Intractable Axial Back Pain

Peter D. Angevine

2:30 – 2:45 PM

Anterior Interbody Techniques for Lumbar Fusion

Eric J. Woodard

2:45 – 3:00 PM

Posterolateral and/or Posterior Interbody Fusion for Low Back Pain

Nicholas Theodore

AFTERNOON SESSIONS

3:00 – 3:15 PM

Use of Bone Graft Extenders, Substitutes and Enhancers

Michael W. Groff

3:15 – 3:25 PM

Audience Polling

3:25 – 3:30 PM

Conclusions

**Council of State
Neurosurgical Societies** **2:00 – 3:30 PM**
Room 150A

Impact of Conflict of Interest on Advancement of Neurosurgery

Moderators: *Alan M. Scarrow, Michael P. Steinmetz*

Learning Objectives: This course covers the nature of conflict of interest as it relates to the practice of neurological surgery. It also addresses the current requirements for divestiture and disclosure when entering a relationship with a corporation as well as the nature of intellectual property development in the current medico-legal environment. Upon completion, participants will be able to strategically plan their level of involvement with corporate relationships.

2:00 – 2:30 PM

Conflict of Interest in 2011

Nicholas M. Boulis

2:30 – 3:00 PM

Divestiture and Disclosure

E. Hunter Dyer

3:00 – 3:30 PM

Innovation Under Scrutiny

Richard G. Fessler

**Section on Neurotrauma
and Critical Care** **2:00 – 3:30 PM**
Room 151A

Injury Guidelines: Uniting Many Studies into Practice

Moderators: *Shelly D. Timmons, Eve C. Tsai*

Learning Objectives: Upon completion, participants will be able to describe the current results regarding the citicoline brain injury treatment trial. Participants will also be able to discuss the effect of brain and spine injury guidelines on practice as well as their socioeconomic and legal aspects. Lastly, they will be able to update their treatment strategies based on the information learned.

2:00 – 2:20 PM

Update on the Citicoline Brain Injury Treatment (COBRIT Trial)

Ross Zafonte

2:20 – 2:40 PM

Brain Injury – How Guidelines Should Affect Practice and Have Affected Practice and What Should be Done in the Future

Shelly D. Timmons

2:40 – 3:00 PM

Spine Injury – How Guidelines Should Affect Practice and Have Affected Practice and What Should be Done in the Future

Beverly C. Walters

3:00 – 3:20 PM

Socioeconomic and Legal Aspects of Guidelines

Alex B. Valadka

3:20 – 3:30 PM

Discussion

Section on Pain **2:00 – 3:30 PM**
Room 154AB

Complications of Pain Surgery

Moderators: *Julie G. Pilitsis, Konstantin V. Slavin*

Learning Objectives: Upon completion, participants will be able to formulate treatment plans based upon the peri-operative management of patients with chronic pain, the management of operative complications associated with pain surgery, and strategies to minimize complications of neuromodulation.

2:00 – 2:30 PM

Complications of Spinal Surgery for Pain

Ashwini D. Sharan

2:30 – 3:00 PM

Complications of Neuromodulation

Christopher J. Winfree

3:00 – 3:30 PM

Complications of Intrathecal Therapy

Richard D. Penn

**Section on Pediatric
Neurological Surgery** **2:00 – 3:30 PM**
Room 150B

State-of-the-Art Management of Pediatric Tumors: Achieving Goals, Managing Risks

Moderators: *Michael H. Handler, Mark D. Krieger*

Learning Objectives: Participants will have the opportunity to engage in live case based discussions with the faculty panel. Upon completion, participants will be able to discuss and formulate surgical plans for the treatment of common pediatric tumors based on current literature. They will also gain an understanding of the roles of chemotherapy, radiation therapy, and second-look surgery in the management of these tumors.

2:00 – 2:10 PM

Medulloblastoma: Literature Review

David I. Sandberg

2:10 – 2:20 PM

Medulloblastoma: Expert Opinion

Corey Raffel

2:20 – 2:30 PM

Ependymoma: Literature Review

Greg Olavarria

2:30 – 2:40 PM

Ependymoma: Expert Opinion

Frederick A. Boop

2:40 – 2:50 PM

Low Grade Glioma: Literature Review

Jay Riva-Cambrin

2:50 – 3:00 PM

Low Grade Glioma: Expert Opinion

Jeffrey H. Wisoff

3:00 – 3:15 PM

Case Discussions

3:15 – 3:30 PM

Panel Discussion

EVENING SESSIONS

Dinner Seminar III

6:30 – 8:30 PM



Current Management Strategies for Metastatic Spine Tumors

Moderator: *Laurence D. Rhines*

Faculty: *Mark H. Bilsky, Peter C. Gerszten, Ziya L. Gokaslan*

Learning Objectives: Upon completion, participants will be able to discuss the latest developments in the management of metastatic spine tumors. Specifically, participants will be able to identify criteria for patient selection regarding surgery, radiosurgery and other treatment techniques.

1789

1789 Restaurant is the quintessential Washington, DC dining experience. Chosen by readers of *Gourmet* magazine as one of America's Top Tables, its inspired creativity is delivered in a relaxed country-inn elegance.

Dinner Seminar includes a 3-course plated dinner and wine service. Transportation will depart the Renaissance Washington, DC Downtown Hotel at 6:00 PM sharp.

Dinner Seminar IV

6:30 – 8:30 PM

Cervical and Lumbar Arthroplasty

Moderator: *Michael Y. Wang*

Faculty: *Domagoj Coric, Fred H. Geisler, James S. Harrop, Gregory R. Trost*

Learning Objectives: Upon completion, participants will be able to describe the quality of the evidence available for spinal arthroplasty. Participants will be able to discuss the advantages and disadvantages of cervical and lumbar arthroplasty, as well as the role it may have in current and future treatment of degenerative spine disease.

Charlie Palmer Steak

Recipient of the 2010, 2009, 2008 Wine Spectator Best of Award of Excellence, Charlie Palmer Steak is dedicated to big, bold American food.

Dinner Seminar includes a 3-course plated dinner and wine service. Transportation will depart the Renaissance Washington, DC Downtown Hotel at 6:00 PM sharp.

Earn additional CME with Dinner Seminar SANS!

6:30 – 6:45 PM

Introductory Remarks

6:45 – 7:15 PM

Evaluation and Decision Making in Metastatic Spine Disease

Mark H. Bilsky

7:15 – 7:45 PM

Surgical Management of Spinal Metastasis

Ziya L. Gokaslan

7:45 – 8:15 PM

Therapeutic Advances: Spinal Stereotactic Radiosurgery and Vertebral Augmentation

Peter C. Gerszten

8:15 – 8:30 PM

Spinal Metastasis: Case Presentations

Laurence D. Rhines

6:30 – 7:00 PM

Essentials of Modern Cervical Arthroplasty

James S. Harrop

7:00 – 7:30 PM

Cervical Arthroplasty: What the Future Holds

Gregory R. Trost

7:30 – 8:00 PM

Today's Lumbar Arthroplasty: Is It Viable?

Fred H. Geisler

8:00 – 8:30 PM

Lumbar Motion Preservation: Will Emerging Technologies Deliver?

Domagoj Coric

CNS International Reception

Wednesday, October 5, 2011

Smithsonian American Art Museum and National Portrait Gallery

7:00 - 8:30 PM

The CNS invites all international attendees to join us for an evening of art and camaraderie. Shuttle transportation will depart the Renaissance Washington, DC Downtown Hotel at 6:45 PM.

General Scientific Session IV

8:00 – 11:30 AM Walter E. Washington Convention Center Hall E

Thursday, October 6

General Scientific Session IV

Presiding Officer: Saleem I. Abdulrauf

Moderators: Brian T. Ragel, Jonas Sheehan

Learning Objectives: Upon completion, participants will be able to formulate management strategies including the latest technological developments in maximizing the resection of primary brain tumors. Participants will also be able to justify the need for preserving motion segments in the diseased cervical spine with arthroplasty techniques.

8:00 – 8:03 AM

Introduction and Disclosures

Saleem I. Abdulrauf



8:03 – 8:08 AM

Introduction: Case Controversies with the Masters (Malignant Glioma: Extent of Resection)

Jonas Sheehan

8:08 – 8:28 AM

Why Maximizing Resection Matters

John K. Park

8:28 – 8:48 AM

Adjuncts for Maximizing Resection: Intraoperative MRI

Jeffrey S. Weinberg

8:48 – 9:08 AM

Adjuncts for Maximizing Resection: 5-ALA

David W. Roberts

9:08 – 9:28 AM

Why Extent of Resection Doesn't Matter

Michael A. Vogelbaum

9:28 – 9:40 AM

Panel Discussion and Audience Questions

9:40 – 10:00 AM

Beverage Break



10:00 – 10:05 AM

Introduction: Case Controversies with the Masters (Cervical Spine Arthroplasty: Fact or Fiction?)

James S. Harrop

10:05 – 10:25 AM

Need for Arthroplasty

Domagoj Coric

10:25 – 10:45 AM

Lack of Need for Arthroplasty

Edward C. Benzel

10:45 – 11:00 AM

Presentation of Cases

Wayne Gluf

11:00 – 11:15 AM

Operative Case Presentation

Mark Edwin Shaffrey

11:15 – 11:25 AM

Panel Discussion and Audience Questions

11:25 – 11:30 AM

Concluding Remarks

Christopher C. Getch

GENERAL INFORMATION

Admission

Admission to the Scientific Sessions and the CNS Exhibits is by CNS badge only. Badges are distributed at the CNS Registration area in the Walter E. Washington Convention Center West Registration on Level 1.

Americans with Disabilities Act

The Walter E. Washington DC Convention Center provides the following services: ramps to entrances and elevated areas, multiple passenger elevators located convenient to all meeting rooms, restroom facilities for the disabled and tactile braille signage at the entrances to all meeting rooms and restrooms, and inside and outside all passenger elevators.

Attire

Professional attire is appropriate at the Annual Meeting and the Exhibit Hall. Some Washington, DC restaurants require coats and ties for gentlemen. Please check each restaurant's policy when making reservations.

Auxiliary Tours, Optional Evening Events and CNS Social Activities

Auxiliary Tours provide spouses and guests with an opportunity to explore the "must see" attractions in the Washington, DC area.

All tours will depart from Renaissance Washington, DC Downtown Hotel. Please arrive 15 minutes prior to the scheduled departure time.

All registered CNS Annual Meeting spouses and guests are invited to visit the Spouse Hospitality Suite, Monday through Wednesday for daily continental breakfast from 8:00 – 10:30 AM. (Please note that admittance to the Spouse Hospitality Suite is by Spouse/Guest badge only.) The Spouse Hospitality Suite is located in Meeting Room 14 at the Renaissance Washington, DC Downtown Hotel.

Optional evening events are available to all registered attendees and our corporate supporters. We encourage you to share this information with your spouse or guest for their convenience. All registered attendees will receive one complimentary ticket to the CNS Opening Reception on Sunday, October 2. See page 49 for more details.

Badges

CNS Annual Meeting badge colors represent the registration category of attendees:

- ★ Blue Medical attendee including CNS Members and Non-members
- ★ Gray Medical Students, Allied Health, Nurses
- ☆ Clear Guests and Spouses
- ★ Yellow Exhibitors
- ★ Red Staff

Book Signings

Gerald Imber, MD

Sunday, October 2, 6:00 PM
Walter E. Washington Convention Center
Grand Ballroom Foyer, Level 3

Jon Meacham

Monday, October 3, 11:30 AM
Walter E. Washington Convention Center
Exhibit Hall – Member Services Booth #1221

Frank Deford

Wednesday, October 5, 11:30 AM
Walter E. Washington Convention Center
Exhibit Hall – Member Services Booth #1221

Business Center

The Walter E. Washington Convention Center has a business center located on Level 1. This business center offers the following services: photocopying, faxing, computer work stations, printing services, office supplies, and UPS and FedEx shipping services.

Children

Children over the age of 12 may register as a guest at the Guest Registration fee. This will allow full participation in Auxiliary Program activities. (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.

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 will be displayed electronically, Monday – Wednesday in the Exhibit Hall and can be searched by author, topic or keyword. You may also access the Digital Posters on the Mobile Meeting Guide at <http://m.cns.org>!

GENERAL INFORMATION

Disclaimer

The material presented at the 2011 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 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 Highlights

Breaks with Exhibitors

Monday – Wednesday	9:00 – 10:00 AM
	11:30 AM – 12:00 PM
	1:30 – 2:00 PM

In-Booth Demonstrations

See page 51 for schedule.

Product & Technology Showcase

See page 50 for schedule.

Research & Development Expert Exchange

See page 50 for details.

Wine & Cheese Experience with the CNS Exhibitors

Tuesday, October 4, 3:30 – 5:00 PM

Exhibit Hall Hours

The CNS Exhibit Hall is located on Level 2 of the Walter E. Washington Convention Center.

Monday, October 3	9:00 AM – 3:00 PM
Tuesday, October 4	9:00 AM – 5:00 PM
Wednesday, October 5	9:00 AM – 2:00 PM

Admittance to the Exhibit Hall is by the CNS name badge only. Children under the age of 18 are not allowed in the CNS Exhibit Hall.

Future Meetings

Chicago, IL	October 6-10, 2012
San Francisco, CA	October 19-24, 2013
Boston, MA	October 18-23, 2014

Housing Information

Renaissance Washington, DC Downtown Hotel

999 Ninth Street, NW
Washington, DC 20001
202 898 9000

Grand Hyatt Washington

1000 H Street, NW
Washington, DC 20001
202 582 1234

Capital Hilton

1001 16th Street, NW
Washington, DC 20036
202 393 1000

Morrison-Clark

1015 L Street, NW
Washington, DC 20001
202 898 1200

St. Regis

923 16th & K Streets, NW
Washington, DC 20006
202 638 2626

W

515 15th Street, NW
Washington, DC 20004
202 661 2400

Westin City Center

1400 M Street, NW
Washington, DC 20004
202 429 1700

The Willard Washington, DC

1401 Pennsylvania Avenue
Washington, DC 20004
202 628 9100

Member Services Booth

The CNS Member Services Booth is located in the Exhibit Hall, Booth #1221. Staff members will be available to assist you and answer any questions you may have about the CNS, *NEUROSURGERY*[®] or your CNS Membership and its member services.

Online Access

E-mail Stations

You will be able to check your e-mail at the E-mail Stations in the Exhibit Hall. Please be sure to have your mail server URL, e-mail account username and password.

GENERAL INFORMATION

Mobile Meeting Guide

For your convenience, the CNS offers a Mobile Meeting Guide. This electronic supplement to the program book provides you a convenient way to search for meetings, events, faculty members, abstracts, exhibitors and more. Use your Smartphone or laptop to visit <http://m.cns.org> and take advantage of this service throughout the CNS Annual Meeting! iPod Touch, iPhone, and iPad users may also download the app at the Apple App Store.

Posters

The CNS Neurosurgical Forum features dynamic oral presentations supported by illustrated posters. This interdisciplinary session will be presented on Monday, 3:30 – 5:00 PM in East Registration on Level 1 of the Walter E. Washington Convention Center. The CNS multidisciplinary oral presentations will be presented on Wednesday, 2:00 – 3:30 PM in Room 151B on Level 1 on the Walter E. Washington Convention Center. Scientific posters, in the CNS enhanced digital format, will be on display Monday through Wednesday in the Exhibit Hall.

Press Room

Press activities will take place at the Walter E. Washington Convention Center. Press registration is available onsite with proper credentials. Please stop by the Registration area for details. Please note, some sessions prohibit press admittance.

Registration Information

Registration is located in the Walter E. Washington Convention Center West Registration area on Level 1.

Registration Hours:

Saturday, October 1	7:00 AM – 5:30 PM
Sunday, October 2	7:00 AM – 7:00 PM
Monday, October 3	6:30 AM – 4:30 PM
Tuesday, October 4	6:30 AM – 4:30 PM
Wednesday, October 5	6:30 AM – 3:00 PM
Thursday, October 6	7:30 – 11:30 AM

Sergeant-at-Arms

If you are interested in becoming a Sergeant-at-Arms volunteer, please stop by Room 209A in the Walter E. Washington Convention Center.

Shuttle Services

Limited shuttle service to the Walter E. Washington Convention Center will be available from the CNS hotels. A shuttle schedule will be posted at the hotels and convention center. Due to the close proximity, the Renaissance Washington DC Downtown will not be shuttled.

Saturday, October 1	7:00 AM – 5:30 PM
Sunday, October 2	7:00 AM – 8:30 PM
Monday, October 3	6:30 AM – 5:30 PM
Tuesday, October 4	6:30 AM – 5:30 PM
Wednesday, October 5	6:30 AM – 4:00 PM
Thursday, October 6	7:30 AM – 12:00 PM

Speaker Ready Room

All speakers and oral presentation abstract presenters should visit the Speaker Ready Room at the Walter E. Washington Convention Center prior to their presentations.

Saturday, October 1	7:00 AM – 5:30 PM
Sunday, October 2	7:00 AM – 6:00 PM
Monday, October 3	6:30 AM – 3:00 PM
Tuesday, October 4	6:30 AM – 3:00 PM
Wednesday, October 5	6:30 AM – 3:00 PM
Thursday, October 6	7:30 – 11:00 AM

Ticket Sales

Tickets for all courses, evening events, and tours are available for purchase in the Registration area on Level 1 of the Walter E. Washington Convention Center.

... Where can I see the latest image-guidance systems?



Stay connected with the CNS Mobile Meeting Guide!

- ★ Easily locate the CNS Member Services Booth and all other exhibiting companies in the Exhibit Hall.
- ★ Browse exhibitor list by company or product.

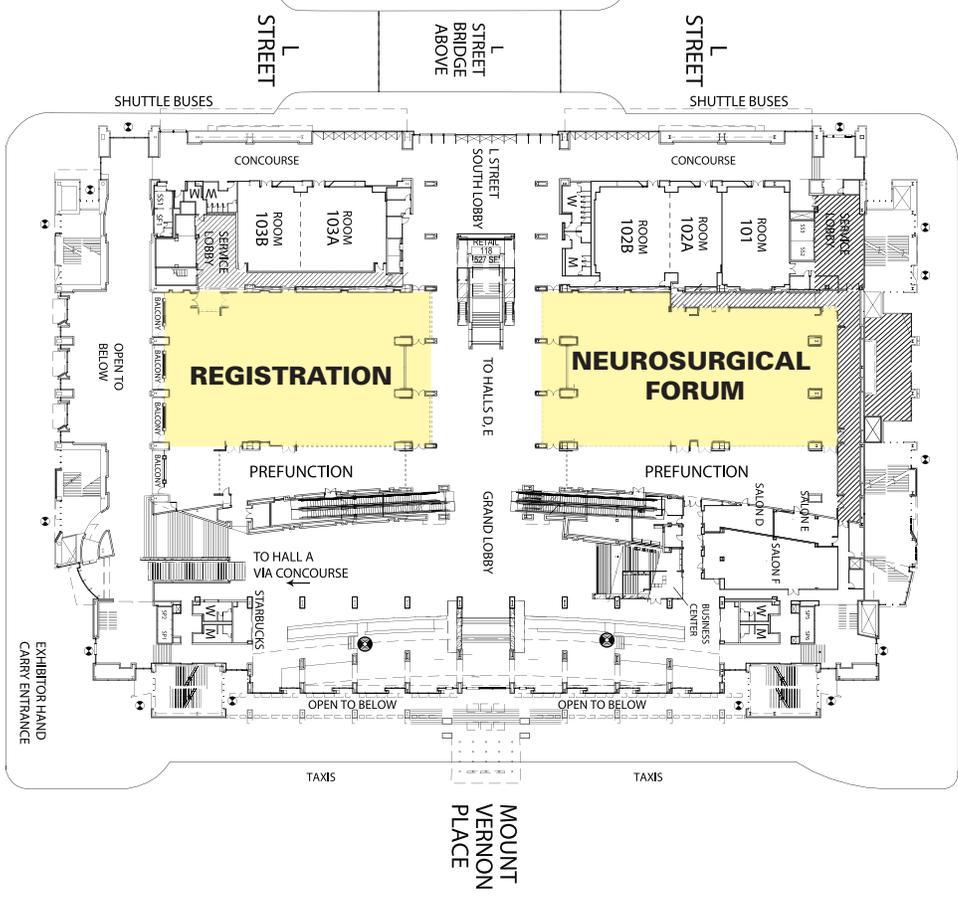
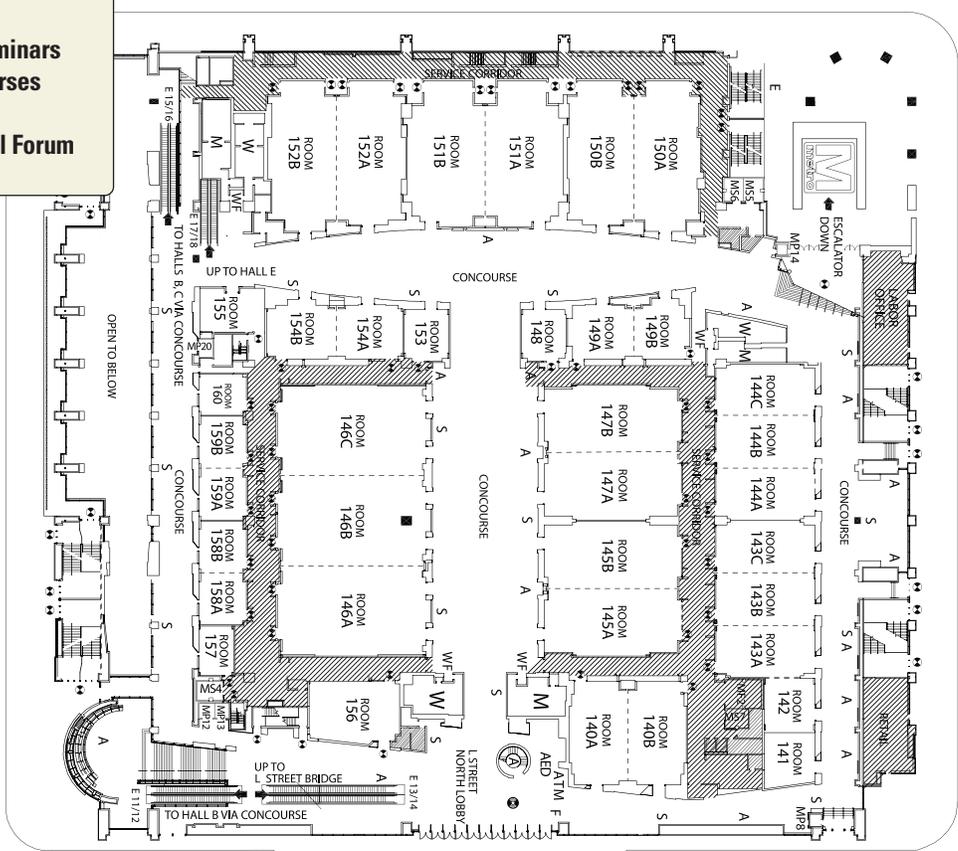


iPhone and iPad users may download the app from the Apple App Store. Connect with your Android and laptop at <http://m.cns.org>!

WALTER E. WASHINGTON CONVENTION CENTER

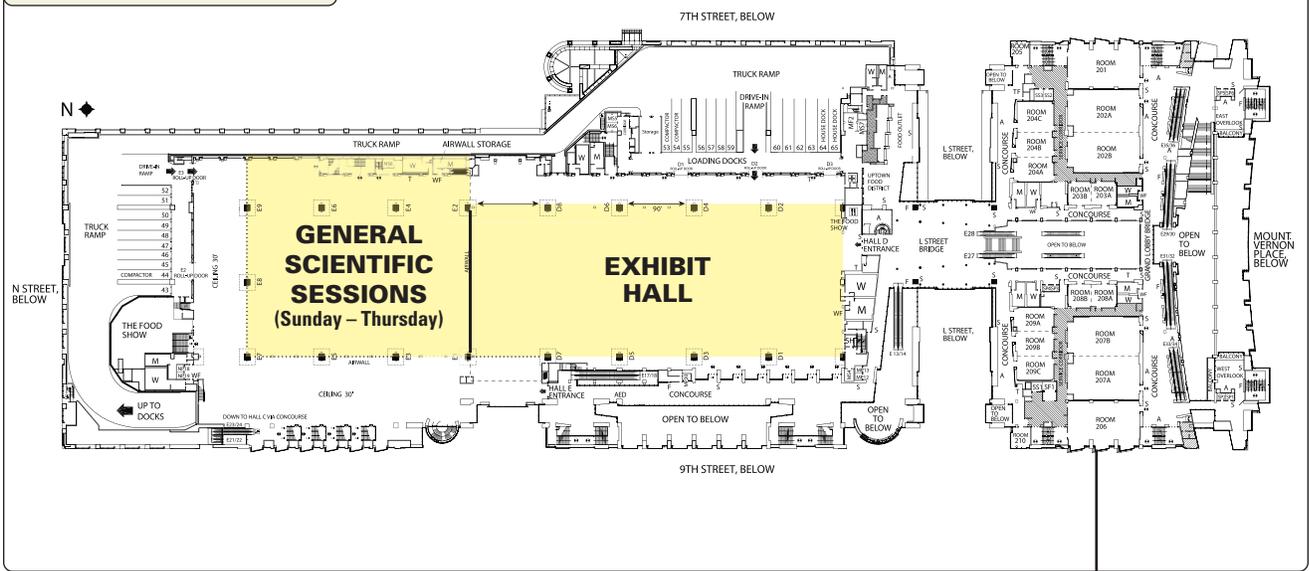
Level One Floor Plan

- Level One**
- ★ Luncheon Seminars
 - ★ Practical Courses
 - ★ Registration
 - ★ Neurosurgical Forum



WALTER E. WASHINGTON CONVENTION CENTER

Level Two Overview

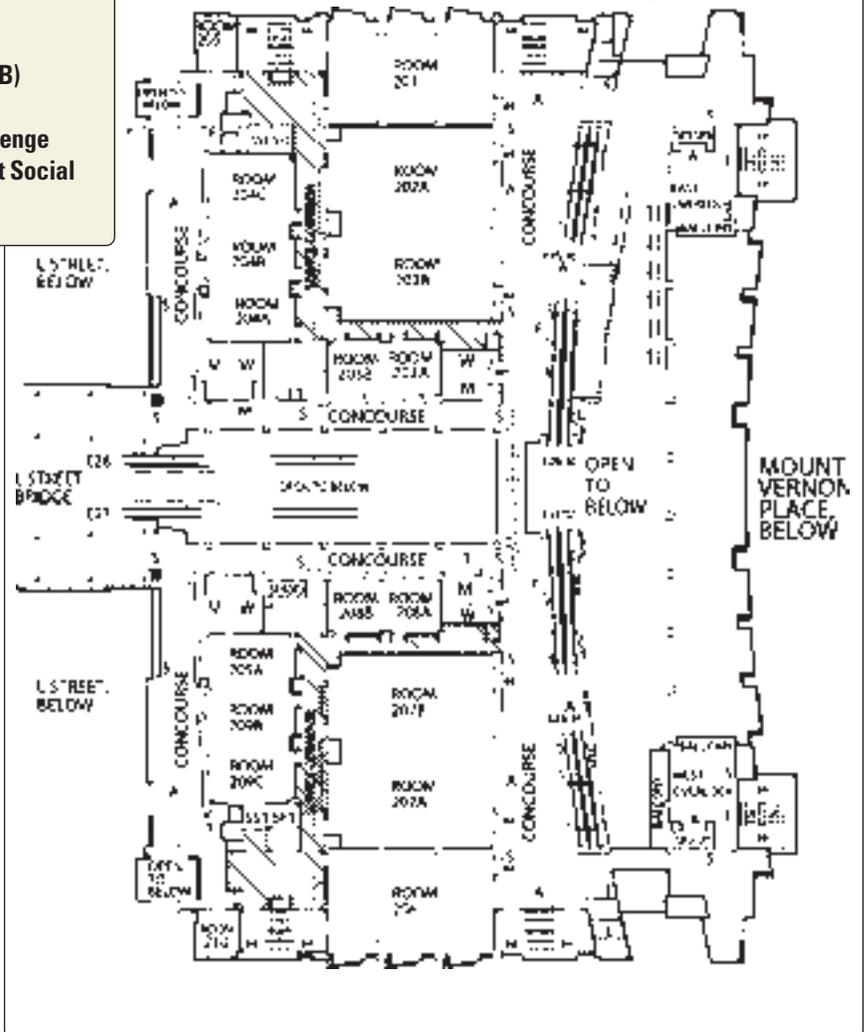
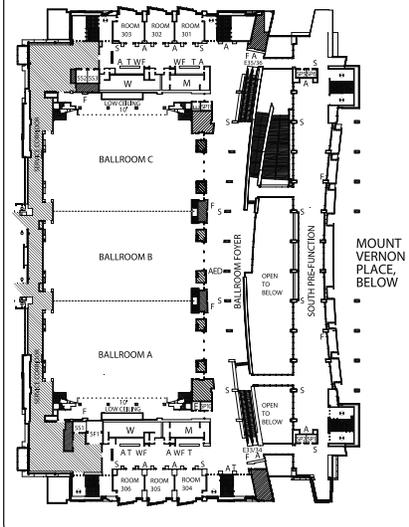


Level Two

- ★ Practical Courses
- ★ Sergeant-at-Arms (209A)
- ★ Speaker Ready Room (203B)
- ★ Oral Presentations
- ★ CNS Resident SANS Challenge
- ★ CNS Resident Recruitment Social
- ★ Annual Business Meeting

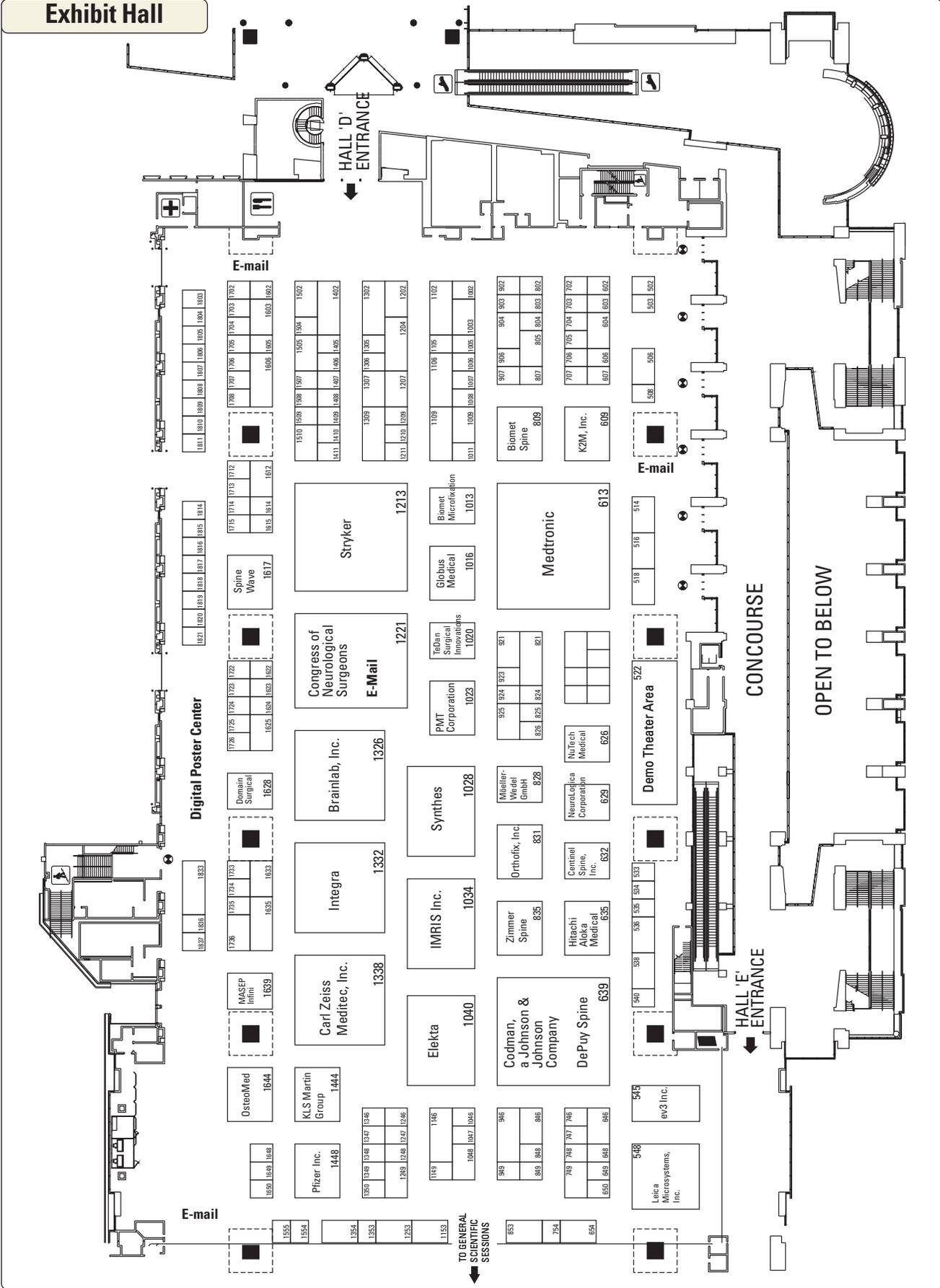
Level Three

- ★ Opening Reception



WALTER E. WASHINGTON CONVENTION CENTER

Exhibit Hall

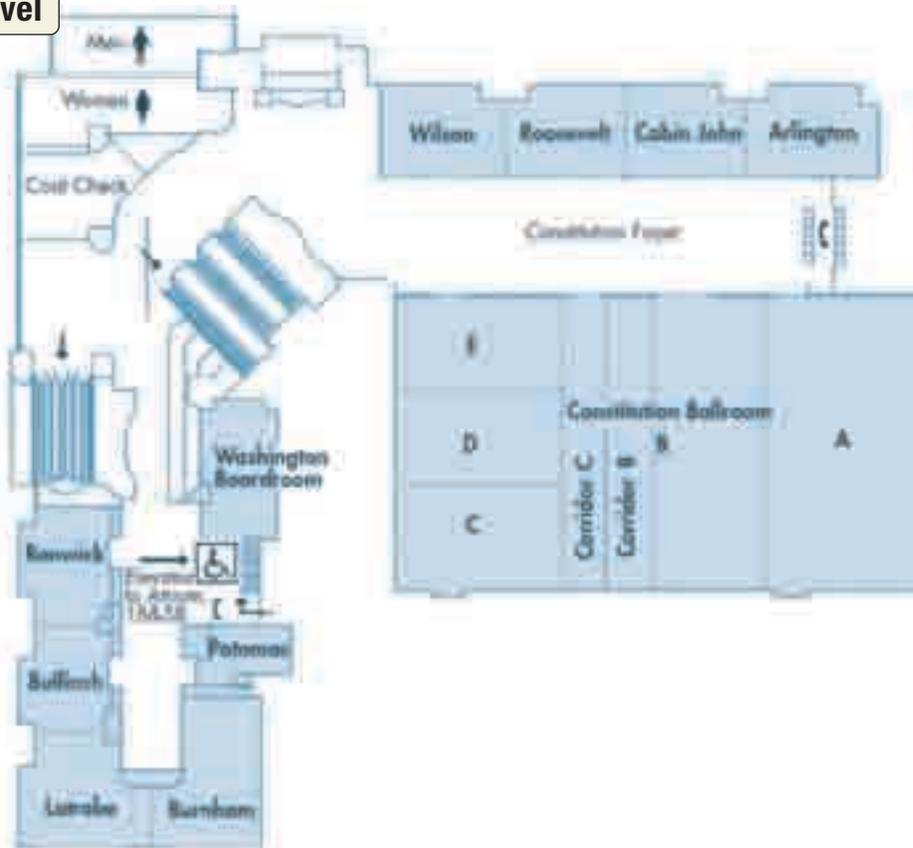


Level Two Exhibit Hall Floor Plan

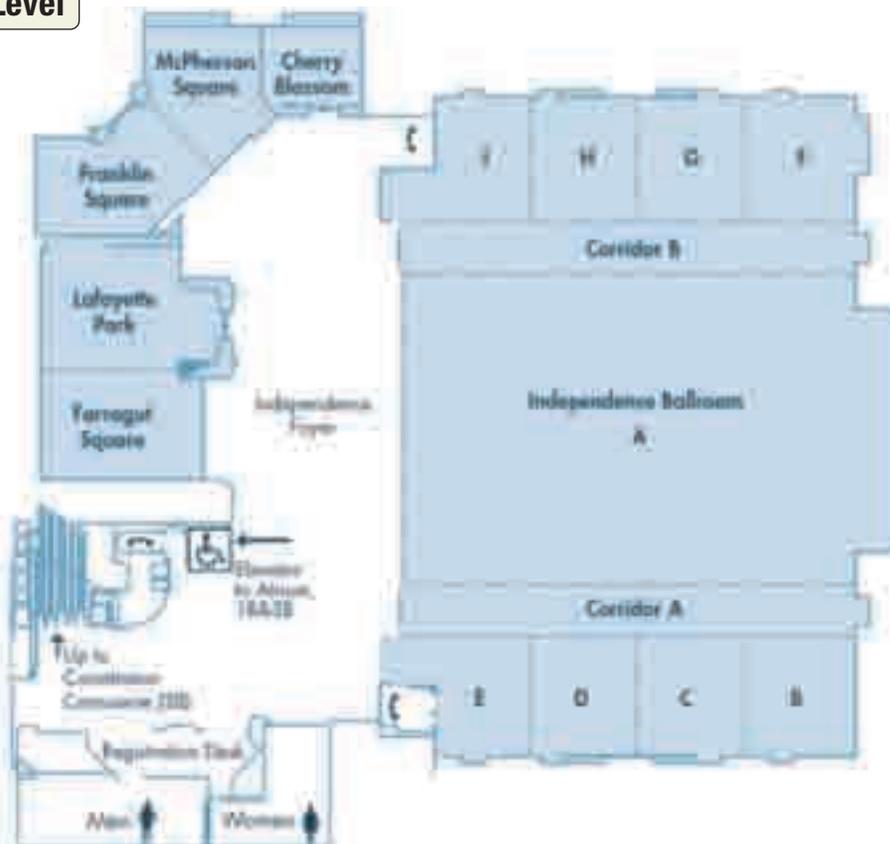
Grand Hyatt Washington

GRAND HYATT WASHINGTON

Constitution Level

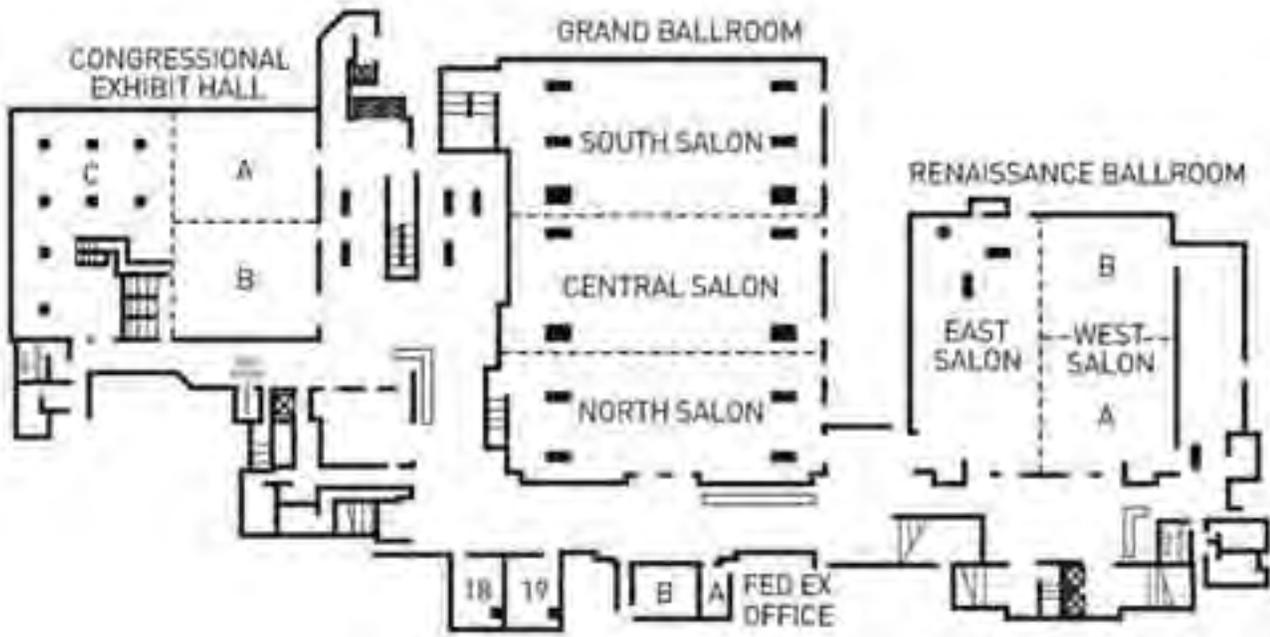


Independence Level

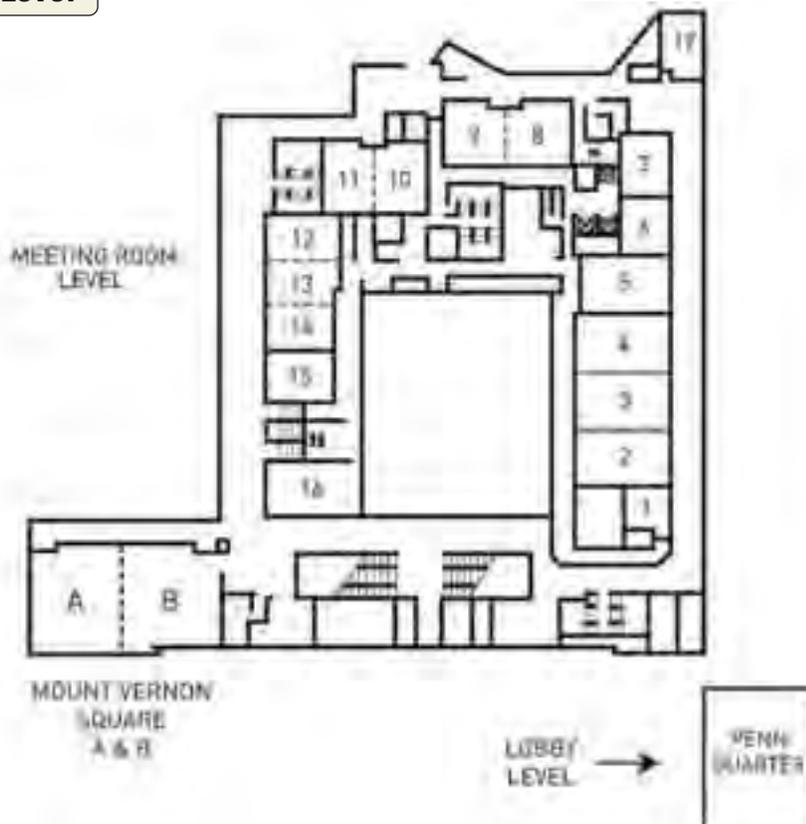


RENAISSANCE WASHINGTON, DC DOWNTOWN

Ballroom Level



Meeting Room Level



Renaissance Washington, DC Downtown

EXHIBITORS

-
- ★ NEW Accutome, Inc.** **1347**
 3222 Phoenixville Pike
 Malvern, PA 19355
 610-889-0200
www.accutome.com
 Accutome will offer a complete line of diamond bladed surgical and nerve transplant knives. Also repair services for any brand or style of diamond scalpel.
-
- Ad-Tech Medical Instrument Corporation** **946**
 1901 William Street
 Racine, WI 53404
 800-776-1555
www.adtechmedical.com
 For over 25 years, Epilepsy Centers have made Ad-Tech their choice for invasive electrodes for brain mapping and epilepsy monitoring. We offer a large variety of electrodes and accessories to meet you and your patient needs. Visit our booth to discover why Ad-Tech is your best choice.
-
- Aesculap Implant Systems, LLC** **1606**
 3773 Corporate Parkway
 Center Valley, PA 18034
 800-234-9179
www.aesculapimplantsystems.com
 Combining years of R&D along with modern technology, Aesculap Implant Systems offers a complete line of implant systems and instruments to both Spine and Orthopaedic surgeons. Aesculap Implant Systems is committed to excellence in satisfying surgeon and patient needs through the delivery of innovative, cost-effective operative solutions.
-
- Allen Medical Systems** **821**
 One Post Office Square
 Acton, MA 01720
 978-266-4200
www.allenmedical.com
 Allen develops technologically-advanced patient positioning systems that enhance surgical access. Allen Spine System turns any OR table into a surgical spine system. It enables intraoperative flexing of the lumbar spine from kyphosis to lordosis, and increased C-arm/O-arm access. The patient supports are optimized for effective pressure management during long procedures.
-
- Alpha Omega** **1555**
 5755 North Point Parkway, Unit 229
 Alpharetta, GA 30022
 877-919-6288
www.alphaomega-eng.com
 Alpha Omega specializes in manufacturing Microelectrode Recording (MER) devices used for intraoperative brain mapping during DBS implant surgery. Alpha Omega has designed two complete product lines to suit your needs. The MicroGuide Pro is a sophisticated, multi-channel research system, and the NeuroNav line offers portable, turn-key integrated MER systems.
-
- ★ NEW AMBU, Inc.** **903**
 6740 Baymeadow Drive
 Glen Burnie, MD 21060
 800-262-8462
www.ambuusa.com
 Surgical Stim Probes and Pain pumps.
-
- Amedica / US Spine** **1106**
 1885 West 2100 South
 Salt Lake City, UT 84119
 801-839-3500
www.amediacacorp.com
 Amedica/US Spine has a well-balanced portfolio including a full-line of implants and instruments to address MIS, interbody fusion, facet fusion and deformity correction. In addition, Amedica manufactures the innovative Silicon Nitride ceramic implants for use in the spine and orthopedic device markets.
-
- American Association of Neurological Surgeons** **604**
 5550 Meadowbrook Drive
 Rolling Meadows, IL 60008
 847-378-0500
www.aans.org
 The AANS offers many benefits to its members including neurosurgical and practice management publications, information on AANS meetings including coding and practice management courses, and alternate options to earn CME credit. Other benefits include the AANS *Journal of Neurosurgery*, AANS Online Career Center, malpractice insurance, medical transcription services and more!
-
- American Express OPEN** **1633**
 200 Vesey Street
 New York, NY 10285
 212-640-2000
www.open.com
 American Express business cards give you access to benefits and can help you save money, gain control over your business expenses and earn valuable rewards.
-
- American Surgical Company** **535**
 82 Sanderson Avenue
 Lynn, MA 01902
 800-343-0060
www.amsursp.com
 American Surgical Company offers an inventive approach to neurosurgery by empowering surgeons with an innovative array of products of varying materials non-adherent qualities and thicknesses. We believe there is no universal sponge for neurosurgery and that surgeons, not manufacturers, have the unique ability to determine which materials work best in their procedures.
-
- 102** www.cns.org

EXHIBITORS

NEW **Amnio Medical** **1047**
2221 Newmarket Parkway, Suite 106
Marietta, GA 30067
888-709-2140
www.amnioxmedical.com

Amniox™ Medical is the leader in amnion regenerative tissue therapies.

Apex Medical, Inc. **1149**
100 Quaker Lane
Malvern, PA 19355
610-240-4905
www.apexmed.com

Apex Arachnoid Knives™ enable delicate, safe, sharp microdissection in a design as elegant and comfortable as that of reusable instruments. Please visit our exhibit to let us help you solve our current surgical challenges with another custom design of unparalleled quality and performance of our existing instruments.

NEW **Arteriocyte Medical Systems, Inc.** **702**
45 South Street
Hopkinton, MA 01748
508-497-9350
www.arteriocyte.com

Arteriocyte Medical Systems is dedicated to developing innovative solutions to improve the outcomes of surgical procedures. Magellen® Autologous Platelet Separator System is designed to be used in a clinical laboratory or intra operatively at the point-of-care for safe and rapid preparation of platelet-rich plasma (PRP) and/or concentrated bone marrow.

Aspen Medical Products **514**
6481 Oak Canyon
Irvine, CA 92618
949-681-0200
www.aspenmp.com

Aspen Medical Products is a leader in the development of innovative spinal bracing for post-trauma stabilization, pre-and-post surgical stabilization, pain management and long-term patient care. Aspen Medical Products offers multiple orthotic options that provide unsurpassed motion restriction, superior comfort and an economic advantage, encouraging better patient compliance.

ASSI-Accurate Surgical **607**
300 Shames Drive
Westbury, NY 11590
800-645-3569
www accuratesurgical.com

ASSI will be displaying its complete line of Noble Real Non-Stick Bipolar Forceps, Sterilization Racks and Baskets, our Fiber Optic LED Light Source and Headlights, Bipolar Scissors as well as our line of Fine Hand Crafted Titanium and Stainless Steel Microsurgical Instrumentation.

Astor & Black Custom Clothiers **848**
81 South 5th Street
Columbus, OH 43215
614-857-9000
www.astorandblack.com

Astor & Black provides its customers with the highest quality of hand-made, fully canvassed, custom suits. Each suit is created to the exact specifications of our highly valued clients. Hand-picked stitching, functional buttonholes, and Bemberg silk linings come standard on all garments. With thousands of fabrics to choose from, satisfaction is guaranteed.

Atlas Spine **1407**
1555 Jupiter Park Drive, Suite 4
Jupiter, FL 33458
561-741-1870
www.atlasspine.com

Atlas Spine strives to create spinal implant and instrument systems that combine the highest level of performance with simplicity of use to enhance patient outcomes. We seek to accomplish this by consulting with today's leading spine surgeons to develop fully integrated implant/instruments systems which efficiently achieve their surgical goals.

Bacterin International, Inc. **1209**
600 Cruiser Lane
Belgrade, MT 59714-9719
406-388-0480
www.bacterin.com

Bacterin International Holdings, Inc. develops specialized allografts with an emphasis on safety, proven clinical efficacy, and providing cost-effective, competitive solutions. We invite you to learn more about OsteoSponge®, OsteoSelect® DBM Putty, and other Bacterin Biologics for your grafting needs. Stop by our booth or visit www.bacterin.com for more information.

*** Thank you to these companies for providing an educational grant in support of the 2011 CNS Annual Meeting!**

EXHIBITORS

Baxano, Inc.**1210**

655 River Oaks Parkway
San Jose, CA 95134
408-514-2200
www.baxano.com

BAXANO's iO-Flex® System is a game-changing system that decompresses central, lateral recess and foraminal stenosis while preserving facet joint integrity and stability in laminectomy and fusion surgery. Up to two levels can be decompressed through a single-point access with either an open or tube-based exposure using the iO-Flex® System.

Baxter Healthcare**1635**

One Baxter Parkway
Deerfield, IL 60015-4625
800-423-2090
www.baxterbiosurgery.com

Baxter is a global, diversified healthcare company with expertise in medical devices, pharmaceuticals, and biotechnology. The company continues its quest for advancing BioSurgery by offering products for hemostasis and osteostimulative bone graft substitute based on a patented silicate substitution process for accelerated bone formation.

Biomet Microfixation**1013**

1520 Tradeport Drive
Jacksonville, FL 32218
904-741-4400
www.biometmicrofixation.com

Biomet Microfixation is a leading manufacturer and distributor of advanced craniomaxillofacial products. Biomet offers a complete portfolio of neurosurgical reconstruction products aimed at improving clinical outcomes, increasing OR efficiency and enhancing ease-of-use. Visit us at booth 1013 to view our latest innovations.

Biomet Spine**809**

100 Interpace Parkway
Parsippany, NJ 07054
973-299-9300
www.biometspine.com

Applying today's most advanced engineering and manufacturing technologies, we've developed our product line to offer surgeons a comprehensive approach for a wide variety of surgical applications for the spine. Visit our exhibit to see how our products can help surgeons change lives for the better, one patient at a time.

BK Medical Systems Inc.**1507**

8 Centennial Drive
Peabody, MA 01960
800-876-7226
www.bkmed.com

New Gold Standard Premium performance neuroimaging from BK Medical. The unparalleled function and design of our two, new dedicated neurosurgical transducers, combined with the flex Focus 700 system's flexibility and superb image quality, provide neurosurgeons with a unique ultrasound imaging solution to address the clinical challenges they face every day.

Blue Chip Surgical Center Partners, LLC**1615**

4760 Red Bank Expressway, Suite 222
Cincinnati, OH 45227
513-561-8900 x16
www.bluechipsurgical.com

Blue Chip Surgical develops and manages physician-led, physician-owned outpatient surgical centers, with an emphasis in integrating Spine. Our development model includes Hospital JV, de Novo and acquisitions; while our operating model has been successfully implemented across all platforms. Exhibiting core competencies in managed care negotiations, cost controls, surgeon recruiting, staffing and financing, ensuring maximum potential.

Boston Scientific**1249**

25155 Rye Canyon Loop
Valencia, CA 91355
661-949-4000
www.controlyourpain.com

Boston Scientific's Precision Plus SCS System powered by SmoothWave™ Technology blends sophistication and simplicity to deliver life-changing therapy for chronic pain patients. Investing in innovative products, clinical initiatives, and world-class service, Boston Scientific is committed to Making Life smoother™ for physicians, patients and the Neuromodulation community.

Brainlab, Inc.**1326**

3 Westbrook Corporate Center, Suite 400
Westchester, IL 60154
708-409-1343
www.brainlab.com

Brainlab develops, manufactures and markets software-driven medical technology that supports targeted, less-invasive treatment. Core products are image-guided systems and software that provide real-time information used for surgical navigation and radiosurgical planning and delivery. Founded in 1989, the privately held Brainlab group has 5,000 systems installed in over 80 countries. brainlab.com

EXHIBITORS

Buxton BioMedical

902

15A Melanie Lane
East Hanover, NJ 07936
973-560-4848
www.buxtonbio.com

Distraction Attraction
Your jagged jaws,
Your hunchbacked reach,
Your clickity-clackity-ratchety lock.
Ol' Inge Spreader,
You grind out your tasks
In such wretched staccato style.

Find civilized alternatives to traditional vertebral body distraction, foraminal exposure and to the plethora of problems still plaguing product performance in everyday spinal surgery.

Cadwell Laboratories, Inc.

649

909 N. Kellogg Street
Kennewick, WA 99336
509-735-6481
www.cadwell.com

Founded in 1979 by brothers John and Carl Cadwell, Cadwell Laboratories continues to set new standards with innovations in clinical EMG/NCV/EP instrumentation, Intraoperative Neuromonitoring, Clinical Monitoring, Sleep Diagnostics, Ambulatory EEG & PSG.

Carl Zeiss Meditec, Inc.

1338

5160 Hacienda Drive
Dublin, CA 94568
925-557-4100
www.meditec.zeiss.com/neuro

Carl Zeiss pioneered the concept of the surgical microscope and today is the world's leading provider of surgical microscopes and visualization solutions. As an integrated medical technology company, Carl Zeiss is able to bundle research and development to accelerate future product innovations.

CCV

907

712 South Milwaukee Avenue
Libertyville, IL 60048
877-272-4869
www.citowcv.com

The CCV Cervical Visualizer is a Table Mounted Radiolucent Positioner for use in Cervical Vertebral Surgery. Gently migrating the shoulders during Radiography WITHOUT Taping the Trapezius, Pulling the Arms with Kurlix, or exposing Staff to Radiation, the CCV works with ANY sized Patient...every time! Arrange your Trial! 1-877-C7-CITOW

Centers for Medicare and Medicaid Services

704

7500 Security Boulevard, Mailstop C4-12-25
Baltimore, MD 21221
410-786-7423
www.cms.gov

The Medicare Learning Network® (MLN) is the home for official information for Medicare Free-For-Service providers. It offers a variety of education resources that break down Medicare policy into plain language. The MLN is located on the Centers for Medicare & Medicaid Services (CMS) Website at www.cms.gov/MLNGenInfo.

Centinel Spine, Inc.

632

505 Park Avenue, 14th Floor
New York, NY 10022
212-674-3337
www.centinelspine.com

Centinel Spine™ is a global medical device company providing PEEK-OPTIMA®, STALIF™, lumbar and cervical technologies for No-Profile™ Interbody Fusion procedures. The STALIF™ family of Integrated Interbody Fusion™ technologies has been used in over 12,000 patients worldwide. The Company is dedicated to "Transforming Spine Surgeons' Ideas into Tomorrow's Technology".

ChoiceSpine

1007

400 Erin Drive
Knoxville, TN 37919
865-246-3333
www.choicespine.net

ChoiceSpine is committed to bringing superior products to orthopedic and neurosurgeon specialists who focus on the treatment of spinal disorders and deformities, through operative intervention. We are committed to meeting the needs of our customers through new product offerings, existing product enhancement, and continued product research and development.

CMF Medicon Surgical Inc.

1814

11200 St. Johns Industrial Parkway North, Suite 5 & 6
Jacksonville, FL 32246
877-879-2637
www.cmfmedicon.com

CMF Medicon is a worldwide leader in the manufacturing of high quality German instruments and titanium fixation systems. Our product range consists of over 30,000 items to serve your neurosurgical needs. Find us at www.cmfmedicon.com and www.medicon.de.

EXHIBITORS

**Codman,
a Johnson & Johnson Company****639** 

325 Paramount Drive
Raynham, MA 02767
508-880-8100
www.codman.com

Codman, a Johnson & Johnson Company, is a global neuroscience and neurovascular company that offers a wide range of devices and solutions for the diagnosis and treatment of neurological disorders, including adult and pediatric hydrocephalus, critical care, pain, aneurysms and cerebral arteriovenous malformations. More information can be found at www.codman.com.

Concentric Medical, Inc.**1408**

301 East Evelyn Avenue
Mountain View, CA 94041-1530
877-471-0075
www.concentric-medical.com

Concentric Medical, Inc., headquartered in Mountain View, CA, is a medical device company focused on the design, development and commercialization of minimally invasive medical devices for use in the neurovasculature. Concentric Medical manufactures the Trevo™ System, Merci Retriever®, Merci® Microcatheter, Merci® Balloon Guide Catheter and the DAC™ Catheter.

Congress of Neurological Surgeons**1221**

10 North Martingale Road, Suite 190
Schaumburg, IL 60173
www.cns.org

The Congress of Neurological Surgeons is a world leader in education and innovation, providing its members with premier educational programs and promoting innovative research critical to the advancement of neurosurgery. Through service on its volunteer committees, the CNS members guide the future of neurosurgery while developing their own leadership skills.

Corazon Inc.**1353**

5000 McKnight Road, Suite 300
Pittsburgh, PA 15237
412-364-8200
www.corazoninc.com

Corazon is a recognized leader in strategic program development for the heart, vascular, and neuro specialties. Corazon brings unparalleled experience and expertise to a full spectrum of services, including consulting, recruitment, and interim management.

 **Thank you to these companies for providing
an educational grant in support of the
2011 CNS Annual Meeting!**

Cosman Medical**923**

76 Cambridge Street
Burlington, MA 01803
781-272-6561
www.cosmanmedical.com

Cosman Medical is the world leader in RF generators and electrodes for Trigeminal Neuralgia, DREZ, cordotomy, spinal pain and functional stereotactic procedures. With 40 years' experience, Cosman provides technologically advanced and cost-effective solutions. The touch-screen G4 graphics generator and RFG-1A generator are major advances in RF capability – setting new standards for functionality and reliability.

Covidien**1109**

555 Long Wharf Drive
New Haven, CT 06511
203-845-1000
www.covidien.com

Covidien BioSurgery delivers innovative surgical biomaterials that are supported by a strong base of clinical evidence and provide superior outcomes for healthcare providers and their patients. For more information please visit our booth #1109.

CUDA Surgical**533**

6018 Bowdendale Avenue
Jacksonville, FL 32216
904-737-7611
www.sunoptictech.com

CUDA Surgical offers a complete line of state-of-the-art Xenon Light Sources, LED battery powered headlights, Surgical Fiberoptic Headlights, Fiberoptic Cables, and Video Products for the Operating Room and Office-Based surgical procedures. When the Surgeons' needs require PREMIUM PERFORMANCE.

Cybertech Medical**1248**

1815 Wright Avenue
La Verne, CA 91750
909-447-7050
www.cybertechmedical.com

Industry leading spinal support. Cybertech pioneered mechanical advantage abdominal compression to bring superior support to the patient, come feel the smooth power of Cybertech. CTO to SI, Cybertech offers superior control, comfort, and compliance.

DePuy Spine**639** 

325 Paramount Drive
Raynham, MA 02767
508-880-8100
www.depuysspine.com

The second largest spine company in the world, DePuy Spine develops innovative orthopaedic and neurosurgical products that address key areas of spinal care, including cervical, aging spine, vertebral body replacement, minimally invasive surgery and the emerging area of biologics. More information on DePuy Spine products can be found at www.depuysspine.com.

EXHIBITORS

Designs For Vision, Inc.**1602**

760 Koehler Avenue
Ronkonkoma, NY 11779
800-345-4009
www.designsforvision.com

Just See It™ with Designs for Vision's lightweight custom-made Surgical Telescopes – now available with Nike® frames. These Telescopes improve visual acuity and reduce back and neck pain. See It Even Better™ with the L.E.D. Daylite™ or Twin Beam™ L.E.D. providing the brightest and safest un-tethered illumination.

DJO Incorporated**621**

1430 Decision Street
Vista, CA 92081-8339
760-727-1280
www.djoglobal.com

DJO is a leading global medical device company providing solutions for musculoskeletal and vascular health, and pain management. The Company's products help patients prevent injuries or rehabilitate after surgery, injury or degenerative disease. DJO's brands include Aircast®, DonJoy®, ProCare®, CMF™, Empi®, Saunders®, Chattanooga Group™, DJO Surgical, Cefar®-Complex® and Ormed®. Visit www.DJOglobal.com.

 Domain Surgical**1628**

1370 South 2100 East
Salt Lake City, UT 84108
801-924-4950
www.domainsurgical.com

Our products provide advanced thermal control for precision in tissue dissection, tumor resection, and hemostasis. Our patent-pending technology produces surface-only tissue effects with energy that does not pass through the patient, reducing the potential for collateral tissue damage from thermal injury and stray electrical current.

Eisai, Inc.**1011**

100 Tice Boulevard
Woodcliff Lake, NJ 07677
201-692-1100
www.eisai.com

Eisai Inc. is the U.S. pharmaceutical operation of Eisai Co. Ltd., a research-based human healthcare(hhc) company that discovers, develops and markets products throughout the world. Eisai's areas of commercial focus include neurology, gastrointestinal disorders and oncology/critical care.

 Eizo Nanao Corporation**623**

5710 Warland Drive
Cypress, CA 90630
562-431-5011
www.radiforce.com

Eizo RadiForce monitors ranging from 1MP-10MP are versatile LCDs available for your medical imaging and surgical needs. With large format monitors and monitor managers, distracting multiple monitor configurations with many bezel separations are no longer an issue. One large easy to use screen with 21 simultaneous inputs makes your OR possibilities endless.

Elekta**1040**

4775 Peachtree Industrial Boulevard
Norcross, GA 30092
770-670-2592
www.elekta.com

A human care company, Elekta pioneers significant innovations and clinical solutions for treating cancer and brain disorders. The company develops tools and treatment planning systems for radiation therapy and radiosurgery, as well as workflow enhancing software systems. Through its products and services, Elekta aims to improve, prolong and save patient lives.

elliquence, LLC**1211**

2455 Grand Avenue
Baldwin, NY 11510
516-277-9000
www.elliquence.com

elliquence, LLC; formerly Ellman Innovations manufactures patented Radiowave technology with innovative devices for neurosurgery and spine procedures. Surgi-Max® Plus permits precision, tissue preservation, non-adherent bipolar effects and surgical versatility. Our unique Micro Bipolar System can offer an additional alternative for minimally invasive neurosurgery.

Elsevier-Saunders/Mosby**1411**

1600 JFK Boulevard, Suite 1800
Philadelphia, PA 19103
215-239-3900
www.elsevierhealth.com

Come see new titles and new editions of Youman's Neurological Surgery, Schmidek and Sweet's Operative Neurosurgical Techniques, Brain Tumors, Minimally Invasive Percutaneous Spinal Techniques, Core Techniques in Operative Neurosurgery, Cerebral Revascularization, Principles of Neurosurgery, 2 Volume Spine Surgery and more. Best selling Journals and the Neurosurgery Clinics and Neuroimaging Clinics.

EXHIBITORS

ev3 Inc.**545**

9775 Toledo Way
Irvine, CA 92618
763-398-7000
www.ev3.net

ev3, Inc. is now a part of Covidien, a leading global healthcare products company that creates innovative medical solutions for better patient outcomes and delivers value through clinical leadership and excellence. ev3's portfolio includes plaque excision systems, PTA balloons, stents, embolic protection, thrombectomy, embolization coils, liquid embolics, occlusion balloons and procedural support solutions.

**ExpertPlan Consulting Services****1305**

50 Millstone Road, Building 400, Suite 300
East Windsor, NJ 08520
609-918-2500
www.expertplan.com

ExpertPlan offers a complete range of consulting, research, administrative and communication services throughout the entire field of qualified and nonqualified plans. Our expert plan administrators, actuaries and compliance specialists allow ExpertPlan to maintain an unparalleled record of fulfilling clients' needs and building solid, long-term relationships.

Fehling Surgical Instruments, Inc.**538**

509 Broadstone Lane
Acworth, GA 30101
800-334-5464
www.fehlingsurgical.com

Fehling Surgical Instruments provides innovative surgical instrument designs using state-of-the-art materials combined with enhanced technology manufacturing techniques. Results are products like the "Fehling CERAMO® Surgical Instrument Line". See AND feel new Cranial Micro Instruments, a wide variety of Ejector Kerrisons and more.

FHC, Inc.**1722**

1201 Main Street
Bowdoin, ME 04287
207-666-8190
www.fh-co.com

Introducing Waypoint™ Navigator featuring CranialVault™ Atlas for convenient planning and lead visualization for traditional stereotaxy and innovative frameless Platform; the STar™ Drive precisely positions D.ZAP™ microelectrodes for optimal recording signals; and portable Guideline 4000 LP+™ provides multi-channel recording, stimulation, LFP analysis and data export. 24/7 technical and OR equipment support!

**Focused Ultrasound Surgery Foundation****606**

1230 Cedars Court, Suite F
Charlottesville, VA 22903
434-220-4993
www.fusfoundation.org

The Focused Ultrasound Surgery Foundation was established to shorten the time from technology development to patient treatment; to foster new applications; and to accelerate the worldwide adoption of MRgFUS.

The Foundation will engage in three primary activities: education, translational and clinical research, and the creation of a network of research and development centers.

Globus Medical**1016**

2560 General Armistead Avenue
Audubon, PA 19403
610-930-1800
www.globusmedical.com

Globus Medical, the world's largest privately held spinal company, is driving significant technological advancements across a complete suite of spinal products. Globus is driven to utilize superior engineering and technology to achieve pain free, active lives for all patients with spinal disorders.

**Gundersen Lutheran Health System****1817**

1900 South Avenue
LaCrosse, WI 54601
608-775-3637
www.gundluth.org

Gundersen Lutheran Health System, based in LaCrosse, Wis., offers the opportunity for you to practice award winning, cutting-edge, patient and family centered medicine, while enjoying a great lifestyle. We are a physician led, integrated, multi-specialty practice that offers the opportunity to teach and do research.

**Hans Biomed USA, Inc.****1818**

140 Sylvan Avenue, Suite 4
Englewood Cliffs, NJ 07632
201-224-2333
www.hansbiomed.com

Hans Biomed is a Tissue Bank looking for distributors for our allograft and DBM products.

**Harlequin Recruiting****724**

935 South Downing Street
Denver, CO 80209
303-832-1866
www.harlequinna.com

Harlequin Recruiting is a premier physician recruiting firm specializing in Neurosurgery. We work with all types of facilities nationwide including academic institutions, hospitals, private practices, and clinics. We represent opportunities for Neurosurgeons in every neurosurgery sub-specialty. We work with our candidates confidentially on personalized, comprehensive searches for their individual preferences and criteria.

EXHIBITORS

Harvest Technologies Corp. 1253

40 Grissom Road, Suite 100
Plymouth, MA 02360
508-732-7500
www.harvesttech.com

Harvest manufactures the first-of-its-kind SmartPREP® 2 Cell Concentration System with BMAC® (Bone Marrow Aspirate Concentrate) kits for Concentrating Autologous Adult Stem Cells, and APC+® kits for Concentrating Platelets--both at point-of-care in only 15 minutes, and both with small volume 30mL kits available.

Hemedex, Inc. 1603

222 Third Street, Suite 0123
Cambridge, MA 02142
617-577-1759
www.hemedex.com

The Hemedex Bowman Perfusion Monitor addresses the need for continuous, real-time measurements of cerebral perfusion in absolute units. Hemedex's technology provides early warnings of tissue ischemia and can help target appropriate therapies rapidly and accurately. It provides clinicians with a powerful tool to generate valuable prognostic data.

Hitachi Aloka Medical 635

10 Fairfield Boulevard
Wallingford, CT 06492
203-269-5088
www.aloka.com

Hitachi Aloka Medical's commitment to ultrasound for surgeons offers a wide range of consoles and specifically designed transducers to meet the needs of every surgeon. Recognized for our superior image quality, system reliability and use of cutting edge technology, we remain the standard in the field of ultrasound for surgeons.

Holmed Corporation 706

40 Norfolk Avenue
South Easton, MA 02375
508-238-3351
www.holmed.net

Working hand-in-hand surgeon to engineer, we design instruments to meet today's stringent requirement. Our staff tests products to higher standards than our competition. We provide easy to use cart effective products that are safe.

Hospital Corporation of America (HCA) 650

3 Maryland Farms, Suite 250
Brentwood, TN 37027
866-889-0203
www.practicewithus.com

HCA owns and operates 164 healthcare facilities in 20 states with opportunities coast to coast. HCA was one of the nation's first hospital companies. We are committed to the care and improvement of human life. We strive to deliver quality healthcare that meets the needs of the communities we serve.

 HOYA Corporation (PENTAX) 1821

2-17-12 Yushima, Bunkyo-Ku
Tokyo 113-0034, Japan
81-3-5840-6141
www.bone.pentax.jp/inquiry_e.php

HOYA Corporation (PENTAX) PENTAX, a division of HOYA Corporation, has launched a series of surgical loupes, PRISMVUE. It relieves operator's neck pain as it is designed to view surgical field without bending neck with the use of the prisms. In addition, reliable optical technology of PENTAX enabled PRISMVUE to give wide and bright sight.

Ikegami Electronics USA, Inc. 1509

37 Brook Ave
Maywood, NJ 07607
201-368-9171
www.Ikegami.com

Ikegami manufacturers Medical Grade Microscopy HDTV Cameras and Monitors.

 Impulse Monitoring Inc. 1624

10420 Little Patuxent Parkway, Suite 250
Columbia, MD 21044
410-740-2370
www.impulsemonitoring.com

Impulse Monitoring, Inc. (IMI) is an intraoperative monitoring (IOM) service company located in Columbia, MD. IMI is distinguished in the marketplace on the strength of its clinical standards, best practices and its extensive use of technology to provide increased value to our clients. IMI currently monitors over 20,000 cases per year.

IMRIS Inc. 1034

100-1370 Sony Place
Winnipeg, MB R3T 1N5 Canada
204-480-7070
www.imris.com

IMRIS is a global leader in providing image guided therapy solutions. These solutions feature fully integrated surgical and interventional suites that incorporate magnetic resonance, fluoroscopy and computed tomography to deliver on demand imaging during procedures. IMRIS's systems serve the neurosurgical, cardiovascular and neurovascular markets and have been selected by leading medical institutions around the world.

Inion Inc. 802

2800 Glades Circle, Suite 138
Weston, FL 33327
954-659-9224
www.inion.com

Inion Inc. is a medical device company focused on the development and successful commercialization of innovative biodegradable and bioactive implants in key target markets. The company's target segments are spine and specialty orthopedics.

EXHIBITORS

NEW Innerspace, Inc.**1504**

1622 Edinger Avenue, Suite C
Tustin, CA 92780
714-654-2367
www.innerspacemedical.com

InnerSpace, Inc. provides surgeons with solutions to treat Traumatic Brain Injury. The company has created a revolutionary ICP sensor, AirPulse ICP, and has integrated access for multimodal monitoring.

Innovasis, Inc.**536**

614 East 3900 South
Salt Lake City, UT 84107-1526
801-261-2236
www.innovasis.com

Innovasis Inc. is a rapidly growing company engaged in the research, development, manufacturing and marketing of spinal implant devices and other neurosurgical related products. We offer a full spinal product line with implants and instruments that address the major pathologies and focus areas of traditional spinal and cranial surgery.

Integra**1332**

311 Enterprise Drive
Plainsboro, NJ 08536
609-275-0500
www.integralife.com

Integra LifeSciences, a world leader in medical devices, is dedicated to limiting uncertainty for surgeons so they can concentrate on providing the best patient care. Integra offers a vast portfolio of implants, devices, instruments and systems used in neurosurgery and neuro-critical care.

INTEGRIS Health, Inc.**622**

3300 NW Expressway
Oklahoma City, OK 73112
405-951-2540
www.integrisk.com

INTEGRIS Health is Oklahoma's largest not-for-profit health system – with hospitals, rehab centers, physician clinics and mental health facilities throughout much of the state. Our mission is to improve the health of the people and communities we serve.

Jeil Medical Corporation**1733**

#702 Kolon Science Valley 2nd 811, Guro-Dong, Guro-Gu
Seoul, 152-050
Korea
+82-2-850-3274
www.jeilmed.co.kr

Jeil Medical Corporation produces plates screws for neuro surgery, oral maxillo facial surgery, guided bone regeneration and orthodontics.

NEW Jewel Precision**1734**

200 Commerce Road
Cedar Grove, NJ 07009
973-857-5545
www.jewelprecision.com

Jewel Precision began manufacturing innovative custom sterilization case systems in 1984. Jewel Precision's experience in sterilization case manufacturing gives us an edge in developing distinctive systems with a combination of material choices, finishes, and product housing features. We offer unique solutions for protecting any type of screws, implants, plates, or instruments.

Journal of Neurosurgery**602**

1224 Jefferson Park Avenue, Suite 450
Charlottesville, VA 22903
434-924-5503
www.thejns.org

Under the aegis of the AANS, the JNS Publishing Group publishes four journals: *Journal of Neurosurgery (JNS)*, *JNS: Pediatrics*, *JNS: Spine*, and topic-based online journal *Neurosurgical Focus*. Since 1944 JNS has been widely recognized for its authoritative and cutting-edge content. Fully-edited, final articles for *JNS* are published online weekly, within 30 days of acceptance.

K2M, Inc.**609**

751 Miller Drive SE
Leesburg, VA 20175
703-777-3155
www.k2m.com

K2M, Inc. is an innovative spinal device company that develops simplified solutions for the treatment of complex spinal pathologies and procedures. K2M's complete portfolio of next generation products includes: spinal stabilization systems, minimally invasive systems, and other advancing technologies for the treatment of deformity, degenerative, trauma, and tumor spinal patients.

Kaiser Permanente**502**

393 East Walnut Street
Pasadena, CA 91188
800-541-7946
<http://physiciancareers.kp.org>

With the Permanente Medical Groups, you'll find recognition, stability, opportunity, and independence. We can also afford you a high quality of life and work schedule that will allow you to spend time with family and friends and to truly enjoy all that your region has to offer.

EXHIBITORS

Karl Storz Endoscopy-America, Inc. 1302

2151 East Grand Avenue
El Segundo, CA 90245
800-421-0837
www.karlstorz.com

KARL STORZ Endoscopy-America, Inc., is an international leader in endoscopy equipment and instrumentation. The company designs, engineers, manufactures and markets products that emphasize visionary design, precision craftsmanship and clinical effectiveness. KARL STORZ sets the industry standard for complete and specialized instruments in neurosurgery.

 Kelyniam Global, Inc. 1005

97 River Road
Canton, CT 06019
800-280-8192
www.kelyniam.com

Kelyniam is a global original manufacturer of Custom Skull Implants using PEEK-OPTIMA LT, from Invibio. We offer revolutionary turn around as fast as 24 hours in emergency cases from receipt of CT data.

Kinamed, Inc. 1622

820 Flynn Road
Camarillo, CA 93012
805-384-2748
www.kinamed.com

Kinamed offers the NeuroPro® Rigid Fixation System designed specifically for neurosurgical skull base and cranial applications. The system includes many unique tools for the neurosurgeon, including the Temporalis Muscle Suspension Plate with suture eyelets for secure repositioning of the temporalis muscle, Chiari Malformation Plate, and single-use Quick Tap Power Driver.

Kirwan Surgical Products, LLC 925

180 Enterprise Drive
Marshfield, MA 02050
781-834-9500
www.ksp.com

Kirwan Surgical Products, LLC manufactures superior quality electrosurgical bipolar and monopolar instruments and accessories for demanding microsurgical specialties. Products include AURA Elite™ Non-Stick Bipolar Forceps, Liberty Disposable Non-Stick Bipolar forceps, Liberty Irrigating Disposable Forceps, and the AURA 70-watt Irrigating Bipolar Generator. New Products Featured: MIS and Endonasal Bipolar Instruments.

KLS Martin Group 1444

P.O. Box 16369
Jacksonville, FL 32245
904-641-7746
www.klsmartin.com

KLS-Martin is a company dedicated to providing innovative medical devices for neurosurgery. We offer a wide variety of surgical instruments, titanium plates and mesh, custom cranial implants, and the revolutionary SonicWeld Rx system for resorbable fixation. Currently based out of Jacksonville, Florida, we have highly qualified representatives covering the needs of surgeons throughout North America.

Koros USA, Inc. 1510

610 Flinn Avenue
Moorpark, CA 93021
805-529-0825
www.korosusa.com

For over 30 years Koros USA, Inc. has been designing and distributing state-of-the-art surgical instruments. Like the Cervical Black Belt, Lumbar Super Slide and ALIF Polaris Retractors along with our Rotating Osteo Punch and Ejector Punch Plus Rongeurs and fine hand instruments.

Lanx, Inc. 1309

310 Interlocken Parkway, Suite 120
Broomfield, CO 80021
303-443-7500
www.lanx.com

Lanx specializes in systems and implants for all segments of spinal surgery. Integrating leading technology, intellectual property, and state-of-the-art engineering, each product is designed to simplify surgery and improve the quality of care for patients worldwide by providing surgeons with innovative spinal products.

LDR 1350

4030 West Braker Lane, Suite 360
Austin, TX 78759
512-344-3300
www.ldrspine.com

LDR creates innovative fusion and non-fusion spinal technologies for surgeons and patients in 26 countries. Partnering with surgeons and sales people, LDR provides spinal systems and instrumentation that make spine surgery reproducible, easier to perform, and restores optimum stability and mobility to patients. We have A Passion for Innovation!

EXHIBITORS

Leica Microsystems, Inc.**548**

1700 Leider Lane
Buffalo Grove, IL 60089
800-248-0123
www.leica-microsystems.com

Leica Microsystems' surgical microscopes feature excellent optical quality and ergonomic features for surgeon comfort; and BrightCare automatic light-intensity adjustment for enhanced patient safety. New – Leica M525 F50 – affordable, high-performance, multi-discipline microscope. Demonstrating – MedXMobile application for wireless transfer/editing of surgical videos onto an Apple® device; and integrated vascular fluorescence.

Life Instrument Corporation**1153**

91 French Avenue
Braintree, MA 02184
781-849-0109
www.lifeinstruments.com

Life Instrument Corporation is dedicated to serving neurosurgeons and orthopedic surgeons with the highest quality surgical instruments. Since the 1980's, spine surgery has advanced with new procedures and new approaches to the spine. Life Instrument Corporation was founded to meet the needs of spine surgeons for these new surgical techniques.

NEW lifeIMAGE**1307**

1 Gateway Center, 300 Washington Street, Suite 507
Newton, MA 02458
617-244-8411
www.lifeimage.com

lifeIMAGE makes it possible for physicians and practices to instantly exchange medical imaging information. Secure, electronic transmission of image data to anyone, anywhere can grow referral networks, create opportunities for distance consulting, and ensure the fastest possible collaboration in time-sensitive neurosurgical treatment planning. For more information visit www.lifeimage.com.

LifeNet Health**749**

1860 Concert Drive
Virginia Beach, VA 23453
757-464-4761
www.accesslifenethealth.org

LifeNet Health helps save lives and restore health for thousands of patients each year. We are the world's most trusted provider of transplant solutions, from organ procurement to new innovations in bio-implant technologies and cellular therapies—while always honoring the donors and healthcare professionals that allow the healing process.

Lippincott Williams and Wilkins – 1502*
WKH

Two Commerce Square, 2001 Market Street
Philadelphia, PA 19103
215-521-8300
www.lww.com

Lippincott Williams & Wilkins, a Wolters Kluwer Health company is a leading international publisher of medical books, journals, and electronic media. We proudly offer specialized publications and software for physicians, nurses, students and clinicians. Please visit our booth to browse our comprehensive product line.

Market Access Partners**1405**

3236 Meadowview Road
Evergreen, CO 80439
303-526-1900
www.marketaccesspartners.com

Market Access Partners provides market research consulting to the medical device and pharmaceutical industries. We use innovative, qualitative and quantitative methodologies to research opinions of physicians, nurses and patients. We offer a management-oriented approach to product development.

**Mary Washington Healthcare****1804**

1101 Sam Perry Boulevard, Suite 419
Fredericksburg, VA 22401
540-741-4831
www.marywashingtonhealthcare.com

Mary Washington Healthcare is a fully integrated, regional medical system located in Fredericksburg, VA within an hour from D.C. and Richmond. Mary Washington Healthcare includes Mary Washington Hospital a 437-bed advanced regional hospital, and Stafford Hospital, a 100-bed community hospital. Advertising for a Neurosurgical practice opportunity.

**MASEP Infini Medical Science
Technology Dev.****1639**

17870 Castleton Street, Suite 395
City of Industry, CA 91748
626-965-3200
www.masepinfini.com

MASEP Infini designs, manufactures, and distributes state-of-the-art stereotactic radiosurgery equipment. Our innovative designs increase the accessibility of these systems world-wide. We want to be the customer's first choice when selecting a stereotactic radiosurgery system.

EXHIBITORS

★ NEW **Massaging Insoles by Superior Health, Inc.** **1702**

328 Blacktail Court
Apopka, FL 32703
407-814-7788
www.massaginginsoles.com

World's best glycerin filled therapeutic massaging insoles. Two year replacement warranty. Machine or hand washable. Sport impact tested to fit in any shoe or sandal. Healthy and natural approach to foot care. Stop by #1702 for a free test walk and ask about the meeting special.

Mazor Robotics **721**

459 Vanderbilt Avenue
Brooklyn, NY 11238
347-844-9794
www.mazorrobotics.com

Renaissance™, Mazor Robotics guidance system for spine surgery, provides a safer surgical environment for patients, surgeons, and OR staff. It is transforming spine surgery from freehand to highly accurate procedures that raise the standard of care with better clinical outcomes, validated in over 2,000 procedures worldwide.

★ NEW **Mazur Marketing** **906**

1315 North Highland Avenue, Suite 105
Aurora, IL 60506
630-892-2797
www.newrongeur.com

MAZUR MARKETING provides physician designed surgical instruments used primarily in spine surgery. The premier instrument is the Mazur Rongeur with angled concave tip for accurately shaping and smoothing all bone surfaces, especially the anterior cervical spine. Non-clogging tip. Made with highest quality German stainless steel and German manufacturing craftsmanship.

MedCure, Inc. **1623**

12013 NE Marx
Portland, OR 97220
503-764-9919
www.medcure.org

MedCure supports medical education and research with our Surgical Training Centers, Total Course Management that handles all details for medical facility courses, Specimen Escorting Services when you need an extra set of hands, or simply by providing anatomical specimens.

★ NEW **Medivance** **534**

321 South Taylor Avenue, Suite 200
Louisville, CO 80027
877-267-2314
www.medivance.com

The Arctic Sun® by Medivance® is the Targeted Temperature Management™ system of choice in top hospitals around the world. The non-invasive technology rapidly achieves target temperature and maintains prescribed temperature with precision. Normothermia and hypothermia protocols can be preprogrammed in the device to ensure safe and consistent delivery of therapy.

MedNet Technologies, Inc. **1008**

1975 Linden Boulevard, Suite 407
Elmont, NY 11003-4004
516-285-2200
www.mednet-tech.com

MedNet Technologies designs, hosts and manages websites for medical practices, hospitals and other healthcare organizations. Clients range in size from small medical offices to teaching hospitals to medical societies. Developing and optimizing your web presence on the Internet is our goal.

Medtech **1625**

1006 rue de la Croix Verte, Bât8
34090 Montpellier
France
+33-467-107740
www.medtechsurgical.com

Medtech designs and markets innovative robotic-assisted solutions for surgery. The system ROSA™ is a new, multi-purpose platform offering valuable assistance in localizing patient anatomy and performing complex surgical interventions. ROSA™ embodies the new generation of surgical assistance technology aiming at enabling new, less invasive surgical techniques.

Medtronic **613**

2600 Sofamor Danek Drive
Memphis, TN 38132
901-396-3133
www.medtronic.com

At Medtronic, we're committed to Innovating for life by pushing the boundaries of medical technology and changing the way the world treats chronic disease. To do that, we're thinking beyond products and beyond the status quo - to continually find more ways to help people live better, longer.

EXHIBITORS

- NEW** **MES Solutions** **1723**
 500 West Cummings Park, Suite 4100
 Woburn, MA 07801
 800-632-0596
www.mesgroup.com
 MES provides independent medical examinations, peer reviews and expert opinions through its independent Medical Evaluators Network which is comprised of qualified and experienced medical professionals across the US who assist our clients with the verification of the legitimacy and accuracy of medical claims.
- MicroVention, Inc.** **949**
 1311 Valencia Avenue
 Tustin, CA 92780
 800-990-8000
www.microvention.com
 MicroVention develops innovative neuroendovascular technologies and devices to include, the MicroPlex® Coil Systems, the HydroCoil® Embolic Systems, the V-Trak® Delivery System with the V-Grip™ Detachment Controller, and a full line of access products to include the new Traxcess™ hydrophilic coated guidewires, the Chaperon™ Guiding Catheter System and the Headway Microcatheter™.
- NEW** **MiMedx Group, Inc.** **1349**
 60 Chastain Center Boulevard, Suite 60
 Kennesaw, GA 30144
 678-384-6720
www.mimedx.com
 MiMedx Group is a developer, processor, manufacturer and marketer of patent protected biomaterial products and tissues. AmnioFix is a Human Amniotic Membrane processed to offer a wide variety of barrier and surgical reconstructive options for spinal procedures. HydroFix is a novel durable hydrogel technology used in spinal applications to protect vessels.
- Mizuho America, Inc.** **1048**
 30057 Ahern Avenue
 Union City, CA 94587
 800-699-2547
www.mizuho.com
 Mizuho America, Inc. is a neurosurgical focused instrumentation company whose main products include Sugita T2 Aneurysm Clips, AVM Clips, Radiolucent & Metal Head Frames; Micro-Instruments, Kelly Endonasal Set, Lawton Neurovascular Bypass Set, 7200B Neurosurgical Operating Table, Feather Precision Cutting Tools, Intra Cranial & Vascular Dopplers and Day-Bailes Suction Tubes.
- Möeller-Wedel GmbH** **828**
 Rosengarten 10
 22880 Wedel, Sch
 Germany
 +49-4103-709-272
www.moeller-wedel.com
 Founded in 1864 as an optical company in Wedel, MÖLLER WEDEL is today a worldwide renowned manufacturer of surgical microscopes. State of the art technology as ICG, the Microscope Imaging and Operation System MÖLLER MIOS, and accessories that will satisfy all surgeons requirements present MÖLLER as a modern and innovative company.
- NEW** **Monteris Medical, Inc.** **1833**
 100-78 Innovation Drive
 Winnipeg, Manitoba R3T 6C2
 Canada
 204-272-2220
www.monteris.com
 Monteris Medical offers AutoLITT®: MRI guided laser interstitial thermal therapy (LITT) for the focused ablation of difficult to treat brain tumors. Monteris also offers the Axiis® Stereotactic Miniframe: a single use positioning platform for placement and guidance of tools for brain biopsies.
www.monteris.com
- Mountain States Health Alliance** **1410**
 400 North State of Franklin Road
 Johnson City, TN 37604
 423-202-5654
www.msha.com
 Mountain States Health Alliance nestled in beautiful Northeast TN and Southwest Virginia, a 13 hospital system, providing care to 29 counties and 1.2 million residents, seeks BC/BE Neurosurgeon to join a vibrant Healthcare Organization. Please visit Booth 1410 for further details.
- MRI INTERVENTIONS INC.** **707**
 5 Musick
 Irvine, CA 92618
 949-900-6833
www.mriinterventions.com
 MRI INTERVENTIONS INC. is a leader in the field of MRI-guided interventions, creating innovative platforms for performing the next generation of interventional procedures in the brain and heart. Utilizing a hospital's existing MRI suite, MRI INTERVENTIONS' FDA cleared ClearPoint™ system is designed to enable a range of minimally invasive procedures in the brain.

EXHIBITORS

Nadia International, Inc. 924

4301 West William Cannon Drive, Suite 150-B, #295
Austin, TX 78749
512-301-3888
www.ronadro.com

Surgical/Educational bronze sculptures specifically created for the neurosurgeon. These museum quality limited editions are sculpted by the world famous sculptor, Ronadro. Ronadro has over 7000 surgeons in 72 countries collecting his fine works of medical art.

National Institute of Neurological Disorders & Stroke (NINDS) 1837

31 Center Drive, Building 31, Room 8A07
Bethesda, MD 20892
301-496-5751
www.ninds.nih.gov

The National Institute of Neurological Disorders and Stroke (NINDS) provides information about available research support and offers free publications for patients and their families on stroke and other neurological disorders. Members of the NINDS staff will be available to assist you. Printed materials are available.

 NEOS Surgery, S.L. 1554

Paseo Mikeletegui 2
20009 Donostia
San Sebastián (Guipúzcoa)
Spain
+34-93-594-47-26
www.neosurgery.com

NEOS Surgery researches, develops, produces and commercializes medical devices which contribute to the improvement of quality of life thanks to advances in medical techniques which facilitate surgery and patient treatment. NEOS will exhibit two of its cranial fixation devices at the CNS: the Cranial Loop and the Cranial Loop L.

NeuroLogica Corporation 629

14 Electronics Avenue
Danvers, MA 01923
706-714-7006
www.neurologica.com

NeuroLogica Corporation, located in the Boston metro area, designs, manufactures and markets innovative medical imaging equipment for healthcare facilities and private practices worldwide. NeuroLogica is known for its portable CT and SPECT scanners. Products: BodyTom™ Portable Full Body CT, CereTom® Portable Small Bore CT, inSPira HD™ Portable High Resolution SPECT.

 NeuroPoint Alliance (NPA) 603

5550 Meadowbrook Drive
Rolling Meadows, IL 60008
847-378-0500
www.aans.org

NeuroPoint Alliance (NPA) was developed to administer data management, neurosurgical clinical services and outcomes measurement. NPA's newest initiative, National Neurosurgery Quality and Outcomes Database (N2QOD), is a quality improvement networking platform, where Practice groups can assess acceptable benchmarks for quality of care and target areas where quality improvement is needed.

New World Rarities, Ltd. 1105

670 Old Willets Path
Hauppauge, NY 11788
800-431-1018
www.newworldrarities.com

New World Rarities is one of the largest wholesalers of gold, silver, and platinum coins in the U.S. While specializing in numismatic material we offer a large selection of bullion related products. Since 1973 New World Rarities has become a worldwide multimillion dollar organization through our reputation, reliability, and performance.

Nexstim, Inc. 1009

1360 Union Hill Road, Suite 3C
Alpharetta, GA 30004
770-664-1000
www.nexstim.com

Nexstim's Navigated Brain Stimulation (NBS) System integrates TMS, EMG, and MRI guided navigation to non-invasively stimulate and map the motor cortex with the accuracy of DCS. In 2009, Nexstim received FDA clearance for Pre-Procedural Planning. Future FDA applications currently in clinical trials are: Stroke Rehabilitation, Speech, and Depression.

NICO Corporation 1247

9190 Priority Way West Drive, Suite 203
Indianapolis, IN 46240
317-660-7118
www.niconeuro.com

NICO's products are designed for use in minimally invasive neurosurgical procedures such as endonasal, retrosigmoidal, supra-occipital and open craniotomy approaches, including spinal surgery. We provide the clinician a more controlled, efficient and less traumatic alternative to tumor resection with the intent to improve clinical and economic outcomes for the patient.

EXHIBITORS

NOC2 Healthcare**754**

209 10th Avenue South, Suite 411
Nashville, TN 37203
615-712-9574
www.noc2healthcare.com

NOC2 invites you to join OUR NETWORK. We offer you participation in medical research, specialized educational forums, and advisory board participation. We partner with medical, biotech, and pharmaceutical industries for compliant scopes of work. Please come by and discuss details that can help your practice and your profession.

**Noras MRI Products****1726**

Leibnizstrasse 4
D-97204 Hoechberg
Germany
877-296-6727
www.mri-products.com

NORAS MRI products GmbH is known for its 8 Ch head coil and head holder for intra-operative neurosurgery. This product was developed in cooperation with Brainlab and Siemens and enables MR supported, neurosurgical interventions, including automatic registration for neuro-navigation.

**North American Spine Society****705**

7075 Veterans Boulevard
Burr Ridge, IL 60527-5614
630-230-3600
www.spine.org

North American Spine Society (NASS) is a multidisciplinary medical organization dedicated to fostering the highest quality, evidence-based, and ethical spine care by promoting education, research and advocacy.

NovaBone Products, LLC**807**

1551 Atlantic Boulevard, #105
Jacksonville, FL 32207
904-807-0140
www.novabone.com

NovaBone Products provides a best-in-class synthetic bone graft substitute. The unique bioactive grafting technology delivers an osteoconductive matrix while signaling and stimulating osteoblastic activity to the site. For ease of use and surgical convenience, NovaBone is available in a variety of forms and sizes.

**NSI-US, Inc.****1006**

6767 South Spruce Street, Suite 220
Centennial, CO 80112
303-860-0261
www.nsi-us.com

NSI-US, Inc. is in the business of designing, developing, manufacturing, marketing & selling medical devices, medical software & other activities associated with commercializing medical business products.

NuTech Medical**626**

2641 Rocky Ridge Lane
Birmingham, AL 35216
205-290-2158
www.nutechmedical.com

Nutech Medical, a true biological company, specializes in innovative allograft based products. Nutech distributes conventional and machined allograft from LifeNet Health. With NuCel, Nutech is able to offer the youngest adult stem cell product on the market. Nutech's product, NuFix, stabilizes the spine through facet fixation and is quickly becoming a staple in every spine surgeon's practice.

OmniGuide, Inc.**1046**

One Kendall Square, Suite B1301
Cambridge, MA 02139
617-551-8444
www.omni-guide.com

OmniGuide, Inc., is the worldwide leader in precision optical scalpels enabling new procedures in minimally invasive surgery. The Company's BeamPath Co2 laser flexible fiber system is a clinically targeted, precision microsurgical instrument optimized for Neurosurgery and is ideal for tissue cutting, delicate dissection and gentle peeling near critical structures.

**OMT LLC****1724**

3848 SW 30th Avenue
Hollywood, FL 33312
954-327-1447
www.omtmedical.com

OMT LLC is a neurosurgical manufacturer of disposable products. Our Neuro Patties are designed, manufactured, patented, and received FDA approval and physician's endorsements. Our innovative surgical Patties meet the neurosurgeon's demands for a thin, soft and tapered Pattie that conforms to anatomical sites like no other. OMT markets its disposable Neuro Patties worldwide.

**Ono & Co., Ltd.****1406**

6F GinzaNF Bldg. 2-12-5
Ginza, Chuo-Ku Tokyo
Japan
+81-3-3544-5351
www.kezlex.com/en

Kezlex®, medical models manufactured by Ono & Co., Ltd., are based on patients' CT and MRI data. They precisely reproduce the inner structure; including bones, nerves, and blood vessels, and can be drilled or clipped like human organs, for surgical simulation and education. They are employed at many hands-on workshops.

EXHIBITORS

Orthofix, Inc. **831**
3451 Plano Parkway
Lewisville, TX 75056
214-937-2293
www.orthofix.com

Orthofix products surround the patient with preventative, intra-operative and post-operative treatment options. Our spine solutions help surgeons respond with the best treatments available to enhance clinical outcomes, including Spinal Implants, Biologics Technology, Bone Growth Stimulators, and Spine Bracing. Our promise is to be Customer Focused, Patient Driven and Always Responsive.

OsteoMed **1644**
3885 Arapaho Road
Addison, TX 75001
972-677-4600
www.osteomed.com

OsteoMed is a global innovative leader in the development and manufacturing of specialty medical and surgical implants for the neurosurgical market. Products include innovative spinal process fusion devices, instrument-less cranial flap replacement devices, dynamic surgical mesh options, and biological bone substitutes.

OsteoSymbionics LLC **518**
1768 East 25th Street, Suite 316
Cleveland, OH 44114
216-881-8500
www.osteosymbionics.com

OsteoSymbionics has the only clear hard tissue implant for patient-specific craniofacial reconstruction. Clear implants allow visualization before closure. Come see how our range of materials and products can meet your needs.

 **Paradigm Spine** **624**
505 Park Avenue, 14th Floor
New York, NY 10022
212-583-9700
www.paradigmospine.com

Paradigm Spine offers Degenerative and Scoliosis solutions in over 50 countries. The company markets the coflex® Interlaminar/Interspinous Stabilization device for spinal stenosis, the coflex-F® Posterior Stabilization device for posterior fusion, the DCI™ System designed as a functionally dynamic cervical spine implant and the DSS® Spinal Stabilization Pedicle based system.

 **Peachtree Financial Solutions** **1306**
3301 Quantum Boulevard, 2nd Floor
Boynton Beach, FL 33426
866-303-2032
www.peachfunding.com

Peachtree Financial Solutions, the premier Medical Lien Funding source, gives Medical Providers the opportunity to sell their Medical Liens (LOPs) related to personal injury cases. Peachtree's attorney network helps grow your practice through our referral program, and our pre-approval program removes risk by approving transactions before medical service is provided.

Penumbra, Inc. **1002**
1351 Harbor Bay Parkway
Alameda, CA 94502
510-748-3200
www.penumbrainc.com

Penumbra, Inc. is an independent medical device company committed to delivering clinically beneficial products that help patients suffering from stroke and other neurovascular diseases. Penumbra's headquarters is located in Alameda, California. The Penumbra System continuous aspiration thrombectomy devices, the Penumbra Coil 400 and Neuron guiding catheters are commercially available worldwide.

Performance Grafts, LLC **825**
2106 West Pioneer Parkway, Suite 132
Arlington, TX 76013
817-226-9900
www.performancegrafts.com

Performance Grafts provides bone tissue and allograft products offering premium processing and sterilization, superior handling and integrity, less post-operative pain, decreased operating time and smaller incisions. Precision machined allograft surfaces reduce the chance of post-operative complication and contribute to ease of placement.

PeriOptix, Inc. **1346**
1001 Avenida Pico, #C620
San Clemente, CA 92673
949-366-3333
www.perioptix.com

PeriOptix™ introduces the new Solaris mini™LED Headlight. No other LED is lighter, smaller or "cooler", weighing only 5.9g. PeriOptix introduces the lightest through the lens (TTL) design on the market. Weighing in at only 36 grams, the elegant and streamlined PeriOptix™TL loupe offers a customized angle of declination and working distance.

EXHIBITORS

- NEW Pfizer Inc.** **1448**
 235 East 42nd Street
 New York, NY 10017
 212-733-2323
www.pfizer.com
 At Pfizer, we apply science and our global resources to improve health and well-being at every stage of life. Every day, Pfizer colleagues work across developed and emerging markets to advance wellness, prevention, treatments and cures that challenge the most feared diseases of our time.
-
- Pioneer Surgical** **853**
 375 River Park Circle
 Marquette, MI 49855
 906-226-9909
www.pioneersurgical.com
 Pioneer Surgical Technology, Inc. is a progressive medical device firm with a comprehensive portfolio of industry-leading orthopaedic, biologic, and spine products. Pioneer is focused on creating innovative, cost-effective surgical solutions that benefit surgeons and provide better patient outcomes.
-
- PMT Corporation** **1023**
 1500 Park Road
 Chanhassen, MN 55317
 800-626-5463
www.pmtcorp.com
 PMT® Corporation is the premier supplier of an extensive line of neurosurgical products. Offering high-end neck braces, including halo systems and orthotic vests for cervical, thoracic and lumbar spinal immobilization. PMT® also offers Cortac®, cortical surface electrodes and Depthalon®, depth electrodes for epilepsy monitoring; microsurgical, irrigation and Fukushima® instruments.
-
- NEW Pro-Dex Medical Devices** **1614**
 2361 McGaw Avenue
 Irvine, CA 92614
 949-769-3200
www.pro-dex.com
 Pro-Dex, Inc. designs and manufactures powered medical devices for leading OEMs in the medical, dental, and lab automation markets. Our safe and reliable devices withstand environments where saline and high pH are common. Pro-Dex provides FDA-registered, ISO 13485:2003-certified manufacturing with full regulatory support to help speed your time to market.
-
- Pro Med Instruments, Inc.** **1202**
 4529 SE 16th Place, Suite 101
 Cape Coral, FL 33904
 239-369-2310
www.headrest.de
 PMI premieres a new skull clamp designed for faster set-up, integrated interfaces, built-in navigation and superior stability. PMI designs and manufactures the largest selection of cranial stabilization and brain retractor systems for neurosurgery. Innovations: DORO® Skull Clamps with Quick-Rail™ Technology, autoclavable Headrest Systems and FDA-cleared MRI-safe Radiolucent Headrest System. World's First Adjustable NON-STICK Bipolar Forceps.
-
- NEW Renishaw plc** **506**
 Wotton Road, Charfield
 Gloucestershire, GL12 8SP
 United Kingdom
 +44 1453 524 524
www.renishaw.com/neuro
 Renishaw is Delivering precision with advanced engineering technology in stereotactic neurosurgery. Our products cover a range of complementary solutions from neurosurgical robotics and surgical planning to imaged-guided implantable devices to further enhance consistency and accuracy of functional and stereotactic neurosurgery surgery now and for the next generation of implantable-led therapies.
-
- RGP, Inc.** **748**
 1 Shannon Court, Suite 103
 Bristol, RI 02809
 800-522-9695
www.rgpergo.com
 The Swedish Seating System is an ergonomically designed operatory stool. Our 400-D combines unparalleled support with an elegant design and the hydraulic mechanism allows the stool's back and seat to 'float', independently following one's movement. www.rgpErgo.com
-
- Rhausler, Inc.** **1020**
 837 Industrial Road, Unit E
 San Carlos, CA 94070
 650-631-4515
www.rhausler.com
 Rhausler Cervical Plating Systems for ACDF offers the surgeon flexibility of Dynamic, Semiconstrained, and "Low Profile" Quick Plate plating systems. With all three plating systems available using the same locking bone screw and insertion tools throughout, minimizes the insertion tools required and simplifies the use of using all 3 plates.

EXHIBITORS

Riverside Health System 1725

701 Town Center Drive, Suite 1000
Newport News, VA 23606
757-534-7037
www.riversideonline.com

Riverside Medical Group, a division of Riverside Health System, is located in southeastern Virginia and encompasses 440 + providers in all major specialties. Historically dominated by acute and long-term care facility investments, Riverside is now a working model of physician-directed transition of healthcare: resilient and flexible enough to face inevitable changes.

Rose Micro Solutions LLC 824

4105 Seneca Street
West Seneca, NY 14224
716-608-0009
www.rosemicrosolutions.com

Rose Micro Solutions is a “family” business consisting of 4 brothers. We sell high quality optical loupes and LED lights for less. We named our company after our mother “Rose.” Please call us at 716-608-0009 or visit us at www.rosemicrosolutions.com.

RosmanSearch, Inc. 1246

30799 Pinetree Road, #250
Pepper Pike, OH 44124
216-256-9020
www.rosmansearch.com

RosmanSearch, Inc. provides targeted neurosurgical services to community and academic neurosurgery practices nationwide. We specialize solely in neurosurgical recruitment. Whether you need a general neurosurgeon or any neurosurgical subspecialty, we can find the right fit for your practice!

Scanlan International, Inc. 921

One Scanlan Plaza
St. Paul, MN 55107
651-298-0997
www.scanlaninternational.com

Highest quality surgical products designed and manufactured by the Scanlan family since 1921. Stainless Steel and Titanium instrumentation, Loftus™ ACDF Distractor, Super Cut™ Microsurgical Knives, Abdulrauf® ECIC By-Pass instruments, Dura Closure Set, Sundt™ Graduated Suction System, Heifetz™ Temporary Occlusion Clips, SUPER CUT™ Scissors, single-use Biopsy Needles and ACCU-SCAN™ Fiducial Markers.

 Scott & White Healthcare System 1508

2401 South 31st Street
Temple, TX 76508
254-724-5655
www.sw.org

Scott & White Healthcare, a fully integrated health system, is the largest multi-specialty practice in Texas, and the sixth largest group practices in the Nation. Scott & White employs more than 110 physicians and research scientists who care for patients covering 25,000 square miles across central Texas.

SeaSpine 1736

2302 La Mirada Drive
Vista, CA 92081
760-727-8399
www.seaspine.com

Based in Southern California, SeaSpine is focused on providing high-quality, competitive products for the spine fusion market and developing next generation non-fusion products. From Sierra™ to Malibu™, SeaSpine offers a full line of fusion and MIS products for the entire spinal column, from occiput to sacrum.

 Sentio, LLC 747

21520 Bridge Street
Southfield, MI 48033
248-416-0740
www.sentiommg.com

Sentio MMG is a proprietary nerve mapping and avoidance system developed to solve one of the most overwhelming challenges in spine surgery today; the ability to perform MIS procedures while avoiding injury to nerves. Sentio MMG is easy to use, surgeon driven, and requires no significant set-up time.

SheerVision 1816

4030 Palos Verdes Drive North, Suite 104
Rolling Hills Estates, CA 90274
310-265-8918
www.sheervision.com

SheerVision designs, develops and manufactures loupe & headlight systems that enhance vision through exceptional visual acuity and powerful illumination. SheerVision's optics (2.5x-5.0x) offer exceptional visual quality coupled with affordability. Their V-Ray headlight projects 9,000+ foot candles of light to outperform most loupe mounted headlights. SheerVision is also the exclusive provider of Under Armour Performance Eyewear Loupes.

 SI-Bone, Inc. 1708

3055 Olin Avenue, Suite 620
San Jose, CA 95128
408-207-0700
www.si-bone.com

SI-BONE, Inc. is the leading sacroiliac (SI) joint medical device company dedicated to the development of tools for diagnosing and treating patients with low back issues related to SI joint pathology. The company is manufacturing and marketing a minimally invasive surgical (MIS) technique for the treatment of SI joint pathology.

EXHIBITORS

Siemens Healthcare**805**

51 Valley Stream Parkway
Malvern, PA 19355
888-826-9702
www.usa.siemens.com/healthcare

Siemens Healthcare is one of the world's largest suppliers to the medical industry with core competence and innovative strength in diagnostic imaging and therapeutic technologies. An innovation leader for more than 130 years, Siemens is helping neurological surgeons diagnose and treat disease by offering state-of-the-art technology.

Sophysa USA, Inc.**826**

303 South Main Street
Crown Point, IN 46307
219-663-7711
www.sophysa.com

Sophysa is focused on the design and manufacture of innovative CSF Management technologies and solutions. Sophysa's pioneering research and development continues to expand the reach of the global neurosurgical community focusing on Hydrocephalus and related disorders of CSF dynamics.

**Söring Medical Technology****654**

8000 NW 31 Street, Suite 8
Miami, FL 33122
305-677-3920
www.soering.com

Soring pioneer, in ultrasound technology and innovative solutions for ultrasonic surgery offers one-of-the-kind solutions for non-contact coagulation. Soring's success hinges on continuous improvement, Sonoca 300, an ultrasonic dissector by Soring Germany is the only unit worldwide offering three working frequencies in one (25,35, and 55 kHz).

Spectrum Health Medical Group**723**

100 Michigan Street NE
Grand Rapids, MI 49503
800-788-8410
www.shmg.org

Spectrum Health Medical Group was formed in October, 2008 to complement the other elements of its system: the Spectrum Health Hospital Group and Priority Health. Spectrum Health Medical Group has dual purposes: – Provide better patient care, in terms of patient outcomes and patient experiences. – Provide physicians with the greatest possible personal and professional satisfaction.

Spinal Elements, Inc.**1102**

2744 Loker Avenue West, Suite 100
Carlsbad, CA 92010
760-607-1821
www.spinalelements.com

Spinal Elements develops and markets innovative spinal technologies. The portfolio includes: Mosaic® Cervical Implant; Atomic® Anterior Cervical Plate; Crystal® Cervical Interbody, Lucent® Lumbar Interbody, and Lucent Magnum® Anterior Lumbar Interbody; Mercury® Classic Pedicle Screw, and Magnum+® Stand Alone ALIF with screws. Spinal Elements is also developing the Zyre® facet implant.

SpinalMotion, Inc.**1409**

201 San Antonio Circle, Suite 115
Mountain View, CA 94040
650-947-3472
www.spinalmotion.com

SpinalMotion is focused exclusively on spinal disc arthroplasty, developing innovative technology designed to further enhance option for patients suffering from degenerative disc disease. SpinalMotion was founded in 2003. The company is located in Mountain View, California. To learn more, please visit our website at www.spinalmotion.com

Spine View, Inc.**508**

48810 Kato Road, Suite 100E
Fremont, CA 94538
510-743-5069
www.spineview.com

Spine View, Inc. is committed to the development and commercialization of novel, minimally-invasive technologies aimed at improving spinal decompression and fusion procedures. We are introducing our next-generation enSpire Surgical Discectomy System, which is designed to facilitate more complete discectomies and accelerate tissue removal in interbody fusion.

Spine Wave**1617**

3 Enterprise Drive, Suite 210
Shelton, CT 06484
203-944-9494
www.spinewave.com

Spine Wave develops and markets clinical solutions for several market segments including: nuclear replacement and augmentation, vertebral compression fracture repair and spinal fusion. The company's product portfolio includes: NuCore® Injectable Nucleus, StaXx® XD Expandable Device, CapSure® PS2 Spine System, Sniper® Spine System, and several additional products. www.spinewave.com

EXHIBITORS

Spineology Inc.

1146

7800 3rd Street North, Suite 600
St. Paul, MN 55128
651-256-8500
www.spineology.com

Spineology, the innovator in anatomy-conserving spine surgery, develops surgical techniques, instruments and implants that conserve spinal bone, nerve and muscle tissues. Spineology is committed to increasing procedural efficiency, reducing surgical morbidity and accelerating patient recovery. Learn more at spineology.com.

St. Jude Medical

1204

6901 Preston Road
Plano, TX 75024
972-309-8000
www.sjmneuro.com

St. Jude Medical is dedicated to putting more control into the hands of those who treat chronic pain. Products include Penta™ leads, the first five-column leads for lateral coverage and precise field control; radiopaque, mechanical locking Swift-Lock™ anchor; and MultiSteering™ technology for real-time assessment and coverage of multifocal pain. sjmneuro.com

Stryker

1213*

4100 East Milham Avenue
Kalamazoo, MI 49001
800-253-3210
www.stryker.com

Stryker is one of the world's leading medical technology companies and is dedicated to helping healthcare professionals perform their jobs more efficiently while enhancing patient care. We provide state-of-the-art medical and surgical equipment to help people lead more active and more satisfying lives. www.stryker.com

Surgical Acuity

503

3225 Deming Way, Suite 190
Middleton, WI 53562
608-831-2555
www.surgicalacuity.com

Surgical Acuity designs and manufactures high-performance magnification loupes for surgeons and other medical professionals. Renowned for quality craftsmanship, Surgical Acuity loupes deliver remarkable resolution over a deep and wide viewing field. Superior visualization is achieved through innovative, lightweight optics made from only the finest grade of glass.

SurgiTel/General Scientific Corporation

846

77 Enterprise Drive
Ann Arbor, MI 48103
734-996-9200
www.surgitel.com

SurgiTel Systems is dedicated to offering the best in ergonomics, vision, and comfort. Coupling SurgiTel Systems' High Definition Optics with Oakley Frames, we offer the very best in magnification systems. SurgiCam, our new loupe-mounted camera system, is digital and lightweight allowing the viewers to see images at the user's perspective.

Synthes

1028*

1302 Wrights Lane East
West Chester, PA 19380
610-719-5000
www.synthes.com

Synthes is a leading global medical device company. We develop, produce and market instruments, implants and biomaterials for the surgical fixation, correction and regeneration of the human skeleton and its soft tissues.

Synthes Anspach

1028

4500 Riverside Drive
Palm Beach Gardens, FL 33410
561-627-1080
www.anspach.com

Synthes Anspach manufactures high performance instrument systems for neurosurgery, neurotology, spinal procedures, and otolaryngology. Our power systems provide consistent power and smooth performance for even the most demanding applications. The advanced design of our instruments assures unparalleled performance and reliability, while allowing effortless assembly, meeting surgeon and staff needs.

TeDan Surgical Innovations

1020

11333 Chimney Rock Road, # 180
Houston, TX 77035
713-726-0886
www.tedansurgical.com

TeDan Surgical Innovations (TSI) designs and manufactures retractor systems for use in Neuro and Orthopedic surgeries. Our product lines: Phantom CS™, TL™, LS™, LT™, MC™, ML™ & new XL™ for minimally invasive, extreme lateral approach. Learn about our patented Pivoting Blades and Sure-Lock™ blade locking mechanism at www.tedansurgical.com.

The Brain Aneurysm Foundation

1348

269 Hanover Street, Building 3
Hanover, MA 02339
781-826-5556
www.bafound.org

The Brain Aneurysm Foundation is the nations ONLY non-profit organization solely dedicated to providing critical awareness, education support and research funding to reduce the incidence of brain aneurysm ruptures.

EXHIBITORS

The NeuroMatrix Group**1354**

6250 Shiloh Road, Suite 110
 Alpharetta, GA 30005
 770-781-0800
www.neuromatrix.com

The mission of NeuroMatrix, established in 1993, is to elevate the standards and practice of Intraoperative Neurophysiologic Monitoring for optimal patient outcomes. With the top clinical staff in the field, we offer the highest level of accurate IONM available today. With education, integrity, and compassion, We Make Surgery Safer®.

The New York Times**1605**

613 South Avenue
 Weston, MA 02493
 781-890-2666
www.ontheavenuemarketing.com

The *New York Times* is the largest metropolitan newspaper in the US. It is frequently relied upon as the official and authoritative reference for modern events. Visit the New York Times booth for 50% off home delivery and receive a special gift with subscription.

Thieme Publishers**1402**

333 7th Avenue
 New York, NY 10001
 212-760-0888
www.thieme.com

Thieme is an award-winning international medical and science publisher serving health professionals and students for more than 100 years. Thieme promotes the latest advancements in clinical practice, publishes the latest research findings, advocates medical education and is known for the high-quality and didactic nature of its books, journals, and electronic products.

ThinkFirst National Injury Prevention Foundation**803**

1801 N. Mill Street, Suite F
 Naperville, IL 60563
 630-961-1400
www.thinkfirst.org

The ThinkFirst National Injury Prevention Foundation, now in our 25th year, is an independent 501(c)(3) nonprofit, focused on educating children, teens and families on reducing their risk for injury. See all ThinkFirst has to offer physicians, chapters and corporate sponsors for use in public education and media events.

Thompson Surgical Instruments**1505**

10170 East Cherry Bend Road
 Traverse City, MI 49684
 231-922-0177
www.thompsonsurgical.com

Thompson Surgical Instruments, Inc. is the market leader in surgical retraction and the original manufacturer of the table mounted retractor. In use for over thirty years, the Thompson Retractor is the only mechanical retractor to offer one frame for all exposure needs, multi-planed independent retraction, and unlimited customization.

Trimedyne, Inc.**746**

25901 Commercentre Drive
 Lake Forest, CA 92630
 949-951-3800
www.trimedyne.com

Trimedyne's economical, reliable 80 and 30 Watt Holmium Lasers; fast vaporizing, durable VaporMAX® Side Firing Fibers costing only \$650 each*; and inexpensive, convenient FlexMAX® Single Use and Reusable Lithotripsy Fibers provide unexcelled clinical results and offer the best value for your money. * In U.S. dollars, Ex Works, Lake Forest, CA USA.

TrueVision Systems, Inc.**646**

315 Bollay Drive, Suite 101
 Santa Barbara, CA 93117
 805-963-9700
www.truevisionsys.com

TrueVision® 3D Surgical is the leader in digital 3D visualization for microsurgery. Based in Santa Barbara, Calif., TrueVision® has developed and patented an intelligent, real-time, 3D surgical visualization platform. The company is focused on developing a suite of 3D guidance applications for microsurgery to assist surgeons and positively impact patient outcomes.

NEW Vascular Simulations, LLC**904**

25 Health Sciences Drive, #101
 Stony Brook, NY 11790
 877-851-6164
www.vascularsimulations.com

Introducing the world's first Neuro Vascular Replication System, created from human CT scan imagery, powered by the True-flow Pulsatile Flow Generator. For medical device development and testing, surgical education and procedural training.

Vertebral Technologies, Inc.**1819**

5909 Baker Road, Suite 550
 Minnetonka, MN 55345
 952-912-5400
www.vti-spine.com

improved and less-invasive spinal therapies. The company received 510(k) clearance to market from the U.S. Food and Drug Administration (FDA) for the InterFuse device in June 2008. VTI will be displaying the InterFuse P and T at the CNS Annual Meeting.

Visionsense Corporation**648**

1270 Avenue of the Americas, #302
 New York, NY 10020
 845-680-0233
www.visionsense.com

Visionsense develops novel visualization solutions that bring stereoscopic sight to minimally invasive surgery (MIS). With advanced sensor technology and proprietary software, the Visionsense system delivers depth perception, high resolution images and maneuvering flexibility through the smallest access diameters. Visionsense's VSII system can be used in Neuro, ENT and Spine procedures.

EXHIBITORS

★ Visualase, Inc. **1803**
8058 El Rio Street
Houston, TX 77054
713-275-2063
www.visualase.net

Visualase, Inc. has developed a laser ablation technology for minimally invasive MRI-guided destruction of tissue. The Visualase system (510(k) cleared by FDA for soft tissue ablation) has been used successfully in over 100 neurosurgical procedures to destroy various targets in the brain, including primary and metastatic tumors, amygdalo-hippocampal structures, and hypothalamic hamartomas.

Vycor Medical, Inc. **1612**
3651 Fau Boulevard, Suite 300
Boca Raton, FL 33431
561-558-2020
www.vycormedical.com

Vycor Medical, Inc. innovative neurosurgical devices and therapy. Vycor's ViewSite Brain Access System (VBAS) allows access to deep brain lesions in a minimally invasive method under image guidance. See how this simple device makes so much sense in dealing with the limitations of conventional brain retractors. access deep tumors; evacuate hemorrhages.

Weatherby Healthcare **849**
(formerly, Weatherby Locums)
6451 North Federal Highway, Suite 800
Fort Lauderdale, FL 33308
800-586-5022
www.weatherbylocums.com

Weatherby Healthcare, an elite staffing company known since 1995 for its superior customer service - Red Ribbon Service, provides each Neurological Surgeon with a personal consultant who locates the best opportunity from hundreds of temporary jobs nationwide. Meeting the needs of the Neurological Surgeon and patients alike is our top priority.

★ Wenzel Spine, Inc. **1207**
206 Wild Basin Road, Building A, Suite 203
Austin, TX 78746
512-469-0600
www.wenzelspine.com

Wenzel Spine offers minimally invasive solutions for stand-alone treatment of disc herniations, spinal stenosis, and spondylolisthesis. Wenzel Spine delivers simple, dependable, and proven alternatives to traditional interbody spinal fusion, including the patented zero-profile VariLift® Expandable Interbody Fusion System. For more information about the Wenzel Spine and our products, visit www.wenzelspine.com.

Wiggins Medical **516**
2112 Arendell Way
Tallahassee, FL 32308
800-497-0851
www.wigginsmedical.com

- 1) HOME OF THE ORIGINAL BLACK KERRISON.
- 2) Smooth as butter, easy on the hands kerrisons.
- 3) New ultra-thin footplate kerrisons.
- 4) Three new curved (foramentomy) kerrison configurations
- 5) No allergic reaction to our nickel-free, titanium distractor pins
- 6) Plus ... rotators, take aparts, and pituitaries.

X-Spine Systems **540**
452 Alexandersville Road
Miamisburg, OH 45342
937-847-8400
www.x-spine.com

X-Spine is the next-generation spinal implant company. We are dedicated to advancing spinal implant technologies that improve surgery outcomes and optimize surgeon experience. X-Spine's principles of Invention, Integration and Intuition guide our product philosophy.

Zimmer Spine **835**
7375 Bush Lake Road
Minneapolis, MN 55439
952-832-5600
www.zimmerspine.com

Zimmer Spine develops, produces and markets the highest quality spine products and services that repair, replace and regenerate spine health. Zimmer constructs superior fusion and non-fusion spine systems, instrumentation systems, cervical plates, allograft bone filler and Trabecular Metal™ Technologies. We value continuous surgeon education, building confidence and enhancing patient outcomes.

PRODUCT/SERVICE GUIDE

Allografts / Human Tissue

Aesculap Implant Systems, LLC	1606
Amniox Medical	1047
Innovasis, Inc.	536
K2M, Inc.	609
Lanx, Inc.	1309
LifeNet Health	749
MiMedx Group, Inc.	1349
Orthofix, Inc.	831
SeaSpine	1736
Spineology Inc.	1146
Synthes	1028

Aneurysm Clips and Accessories

Apex Medical, Inc.	1149
CMF Medicon Surgical Inc.	1814
Mizuho America, Inc.	1048

Bone Growth Stimulators

DJO Incorporated	621
NovaBone Products, LLC	807
Orthofix, Inc.	831

Bone Substitute

Aesculap Implant Systems, LLC	1606
Amedica / US Spine	1106
Baxter Healthcare	1635
Biomet Microfixation	1013
Harvest Technologies Corp.	1253
Inion Inc.	802
Kelyniam Global, Inc.	1005
NovaBone Products, LLC	807
OsteoMed	1644
Pioneer Surgical	853

Business Management Solutions

NeuroPoint Alliance (NPA)	603
Peachtree Financial Solutions	1306

Cervical Collars

Aspen Medical Products	514
PMT Corporation	1023

Computer Hardware

Eizo Nanao Corporation	623
------------------------	-----

Computer Software for Office Management

TrueVision Systems, Inc.	646
--------------------------	-----

Computer Software for Surgical Applications

FHC	1722
Hans Biomed USA, Inc.	1818
Mazor Robotics	721
Medtech	1625
Nexstim, Inc.	1009

Continuing Medical Education Courses

American Association of Neurological Surgeons	604
Cadwell Laboratories, Inc.	649
Congress of Neurological Surgeons	1221
North American Spine Society	705

Craniotomes, Drills & Accessories

CMF Medicon Surgical Inc.	1814
Kelyniam Global, Inc.	1005
Kirwan Surgical Products, LLC	925
KLS Martin Group	1444
Stryker	1213
Vycor Medical, Inc.	1612

CSF Drainage Devices

Innerspace, Inc.	1504
Integra	1332
Sophysa USA, Inc.	826
Vycor Medical, Inc.	1612

CT/MRI Magnetic Source Imaging

Eizo Nanao Corporation	623
IMRIS Inc.	1034
NeuroLogica Corporation	629
Noras MRI Products	1726
Visualase, Inc.	1803

Diagnostic Imaging

BK Medical Systems Inc.	1507
Cadwell Laboratories, Inc.	649
CCV	907
Eizo Nanao Corporation	623
lifeIMAGE	1307
Nexstim, Inc.	1009
Noras MRI Products	1726
TrueVision Systems, Inc.	646

Dura Substitute

Codman, a Johnson & Johnson Company	639
Integra	1332

Endoscopes, Neurological

Carl Zeiss Meditec, Inc.	1338
Karl Storz Endoscopy-America, Inc.	1302
Visionsense Corporation	648
Vycor Medical, Inc.	1612

Endovascular Devices

MicroVention, Inc.	949
Vascular Simulations, LLC	904

Financial Services (Professional & Personal)

ExpertPlan Consulting Services	1305
Peachtree Financial Solutions	1306

PRODUCT/SERVICE GUIDE

Functional Stereotactic Surgery

Alpha Omega	1555
Cosman Medical	923
FHC	1722
Hans Biomed USA, Inc.	1818
Medtech	1625
Monteris Medical, Inc.	1833
MRI INTERVENTIONS INC.	707
Renishaw plc	506
Visualase, Inc.	1803

Halo Systems / Spinal Orthosis / Spinal Support Systems

Aspen Medical Products	514
PMT Corporation	1023
Pro Med Instruments, Inc.	1202

Headlights, Surgical

Carl Zeiss Meditec, Inc.	1338
Designs For Vision, Inc.	1602
KLS Martin Group	1444
PeriOptix, Inc.	1346
Rose Micro Solutions LLC	824
SheerVision	1816
SurgiTel/General Scientific Corporation	846

Health & Sports Equipment

Massaging Insoles by Superior Health, Inc.	1702
ThinkFirst National Injury Prevention Foundation	803

Hemostats

Baxter Healthcare	1635
Fehling Surgical Instruments, Inc.	538

Image-Guided Navigation Systems

BK Medical Systems Inc.	1507
FHC	1722
Hans Biomed USA, Inc.	1818
Medtech	1625
MRI INTERVENTIONS INC.	707
Nexstim, Inc.	1009
Pro Med Instruments, Inc.	1202
Renishaw plc	506
Siemens Healthcare	805
Stryker	1213
TrueVision Systems, Inc.	646

Insurance

MES Solutions	1723
---------------	------

Lasers

Monteris Medical, Inc.	1833
OmniGuide, Inc.	1046
Visualase, Inc.	1803

Management Consultants

Blue Chip Surgical Center Partners, LLC	1615
Corazon Inc.	1353
MES Solutions	1723
NOC2 Healthcare	754

Medical Devices

Allen Medical Systems	821
Amedica / US Spine	1106
Arterioocyte Medical Systems, Inc.	702
Aspen Medical Products	514
Atlas Spine	1407
Baxano, Inc.	1210
Biomet Microfixation	1013
BK Medical Systems Inc.	1507
Boston Scientific	1249
Cadwell Laboratories, Inc.	649
Carl Zeiss Meditec, Inc.	1338
Centinel Spine, Inc.	632
CMF Medicon Surgical Inc.	1814
Codman, a Johnson & Johnson Company	639
Cosman Medical	923
Covidien	1109
DePuy Spine	639
DJO Incorporated	621
Domain Surgical	1628
Eizo Nanao Corporation	623
Elekta	1040
elliquence, LLC	1211
ev3 Inc.	545
FHC	1722
Globus Medical	1016
Hans Biomed USA, Inc.	1818
Harvest Technologies Corp.	1253
Holmed Corporation	706
Ikegami Electronics USA, Inc.	1509
Inion Inc.	802
Innerspace, Inc.	1504
Jeil Medical Corporation	1733
K2M, Inc.	609
Karl Storz Endoscopy-America, Inc.	1302
Kelyniam Global, Inc.	1005
Lanx, Inc.	1309
LDR	1350
Massaging Insoles by Superior Health, Inc.	1702
Mazor Robotics	721
Medivance	534
Medtech	1625
MicroVention, Inc.	949
MiMedx Group, Inc.	1349
Mizuho America, Inc.	1048
Monteris Medical, Inc.	1833
NEOS Surgery, S.L.	1554
NeuroLogica Corporation	629
Nexstim, Inc.	1009
NICO Corporation	1247
Noras MRI Products	1726
NovaBone Products, LLC	807
NSI-US, Inc.	1006
OMT LLC	1724
Orthofix, Inc.	831
OsteoMed	1644
OsteoSymbionics LLC	518
Paradigm Spine	624
Pioneer Surgical	853
Pro-Dex Medical Devices	1614
Renishaw plc	506
SeaSpine	1736

PRODUCT/SERVICE GUIDE

Sentio, LLC	747
SI-Bone, Inc.	1708
Sophysa USA, Inc.	826
Spinal Elements, Inc.	1102
SpinalMotion, Inc.	1409
Spine Wave	1617
Spineology Inc.	1146
Stryker	1213
Synthes	1028
Vascular Simulations, LLC	904
Vertebral Technologies, Inc.	1819
Visualase, Inc.	1803
Wenzel Spine, Inc.	1207

Microscope Systems

Carl Zeiss Meditec, Inc.	1338
Leica Microsystems, Inc.	548
Möeller-Wedel GmbH	828
PeriOptix, Inc.	1346
Rose Micro Solutions LLC	824
SheerVision	1816
TrueVision Systems, Inc.	646

Microsurgical Instrumentation

Accutome, Inc.	1347
Apex Medical, Inc.	1149
ASSI-Accurate Surgical	607
Biomet Microfixation	1013
CMF Medicon Surgical Inc.	1814
Codman, a Johnson & Johnson Company	639
Fehling Surgical Instruments, Inc.	538
FHC	1722
Hans Biomed USA, Inc.	1818
Karl Storz Endoscopy-America, Inc.	1302
Kirwan Surgical Products, LLC	925
Mizuho America, Inc.	1048
OmniGuide, Inc.	1046
Vycor Medical, Inc.	1612

Monitoring Systems

Cadwell Laboratories, Inc.	649
Concentric Medical, Inc.	1408
Ikegami Electronics USA, Inc.	1509
Innerspace, Inc.	1504
Integra	1332
Sentio, LLC	747
Sophysa USA, Inc.	826

Operating Tables & Accessories

Mizuho America, Inc.	1048
----------------------	------

Patient Education Information

Massaging Insoles by Superior Health, Inc.	1702
Nadia International, Inc.	924
National Institute of Neurological Disorders & Stroke (NINDS)	1837
The Brain Aneurysm Foundation	1348
ThinkFirst National Injury Prevention Foundation	803

Pharmaceuticals

Eisai, Inc.	1011
-------------	------

Practice Management

MES Solutions	1723
NeuroPoint Alliance (NPA)	603
RosmanSearch, Inc.	1246
Scott & White Healthcare System	1508

Publishers, Scientific / Journals

Congress of Neurological Surgeons	1221
Journal of Neurosurgery	602
Lippincott Williams and Wilkins – WKH	1502
Thieme Publishers	1402

Recruiters

Corazon Inc.	1353
Gundersen Lutheran Health System	1817
Harlequin Recruiting	724
Hospital Corporation of America	650
INTEGRIS Health, Inc.	622
Kaiser Permanente	502
Mary Washington Healthcare	1804
MES Solutions	1723
Mountain States Health Alliance	1410
NeuroPoint Alliance (NPA)	603
RosmanSearch, Inc.	1246
Scott & White Healthcare System	1508
Spectrum Health Medical Group	723
Weatherby Healthcare (formerly, Weatherby Locums)	849

Rehabilitation

Cadwell Laboratories, Inc.	649
DJO Incorporated	621
Nexstim, Inc.	1009

Research, Medical Marketing

Kelyniam Global, Inc.	1005
Market Access Partners	1405

Rigid Fixation / Plating Systems

Aesculap Implant Systems, LLC	1606
Amedica / US Spine	1106
Atlas Spine	1407
Biomet Microfixation	1013
DePuy Spine	639
Jeil Medical Corporation	1733
K2M, Inc.	609
KLS Martin Group	1444
Pioneer Surgical	853
Pro Med Instruments, Inc.	1202
Spineology Inc.	1146
Stryker	1213
Synthes	1028

Robotics

Mazor Robotics	721
Medtech	1625
Renishaw plc	506

PRODUCT/SERVICE GUIDE

Shunts & Valves

Codman, a Johnson & Johnson Company	639
Sophysa USA, Inc.	826
Integra	1332

Spinal Fixation Instrumentation

Aesculap Implant Systems, LLC	1606
Amedica / US Spine	1106
Atlas Spine	1407
ChoiceSpine	1007
CMF Medicon Surgical Inc.	1814
Covidien	1109
DePuy Spine	639
Globus Medical	1016
Holmed Corporation	706
Innovasis, Inc.	536
K2M, Inc.	609
Lanx, Inc.	1309
Mazor Robotics	721
Orthofix, Inc.	831
OsteoMed	1644
Pioneer Surgical	853
SI-Bone, Inc.	1708
Spine Wave	1617
Spineology Inc.	1146
Synthes	1028
Vertebral Technologies, Inc.	1819

Spinal Support Systems

Aspen Medical Products	514
Atlas Spine	1407
DePuy Spine	639
PMT Corporation	1023
Pro Med Instruments, Inc.	1202
Spineology Inc.	1146
Stryker	1213
Vertebral Technologies, Inc.	1819

Stereotactic Radiosurgery Systems

Elekta	1040
Integra	1332
MASEP Infini Medical Science Technology Dev.	1639
Monteris Medical, Inc.	1833
Visualase, Inc.	1803

Sterilization Containers

ASSI-Accurate Surgical	607
Elekta	1040
Fehling Surgical Instruments, Inc.	538
Jeil Medical Corporation	1733
Jewel Precision	1734

Surgical Instruments / Supplies

Aesculap Implant Systems, LLC	1606
Apex Medical, Inc.	1149
ASSI-Accurate Surgical	607
Atlas Spine	1407
Baxano, Inc.	1210
Biomet Microfixation	1013
BK Medical Systems Inc.	1507

Buxton BioMedical	902
Codman, a Johnson & Johnson Company	639
Covidien	1109
Domain Surgical	1628
Elekta	1040
Fehling Surgical Instruments, Inc.	538
Globus Medical	1016
Holmed Corporation	706
Innovasis, Inc.	536
Jeil Medical Corporation	1733
Karl Storz Endoscopy-America, Inc.	1302
Kirwan Surgical Products, LLC	925
KLS Martin Group	1444
Koros USA, Inc.	1510
Leica Microsystems, Inc.	548
Life Instrument Corporation	1153
Mazur Marketing	906
Mizuho America, Inc.	1048
OmniGuide, Inc.	1046
Orthofix, Inc.	831
OsteoMed	1644
Pioneer Surgical	853
Pro Med Instruments, Inc.	1202
Pro-Dex Medical Devices	1614
Rose Micro Solutions LLC	824
TeDan Surgical Innovations	1020
Thompson Surgical Instruments	1505
Vycor Medical, Inc.	1612

Sutures / Sponges

American Surgical Company	535
OMT LLC	1724

Telescopes, Surgical (Loupes)

Carl Zeiss Meditec, Inc.	1338
Designs For Vision, Inc.	1602
HOYA Corporation (PENTAX)	1821
PeriOptix, Inc.	1346
Rose Micro Solutions LLC	824
SheerVision	1816
Surgical Acuity	503
SurgiTel/General Scientific Corporation	846

Transportation

Accutome, Inc.	1347
----------------	------

Ultrasound Equipment

BK Medical Systems Inc.	1507
Elekta	1040
Hitachi Aloka Medical	635
Siemens Healthcare	805

Video Equipment

Eizo Nanao Corporation	623
Ikegami Electronics USA, Inc.	1509
Karl Storz Endoscopy-America, Inc.	1302
Leica Microsystems, Inc.	548
SurgiTel/General Scientific Corporation	846
TrueVision Systems, Inc.	646

SPEAKER INDEX

Aarabi, Bizhan	45, 65	Cheshier, Samuel H.	80	Green, Barth A.	88
Abd-El-Barr, Muhammad	70	Chi, John	45	Groff, Michael W.	80, 83, 91
Abdulrauf, Saleem I.	93	Chiocca, E. Antonio	42	Gross, Robert E.	45, 54, 89
Abosch, Aviva	70, 83, 89	Chitale, Rohan	44	Grotenhuis, Andre	45
Adelson, P. David	87	Chittiboyna, Prashant	58	Gupta, Deepak Kumar	90
Aghi, Manish K.	44, 84	Cockroft, Kevin M.	54	Hadjipanayis, Costas G.	55, 71, 72
Aldape, Kenneth D.	84	Cohen, Alan R.	45, 68, 69, 79	Hadley, Mark N.	81
Alexander, Michael J.	82	Cohen-Gadol, Aaron A.	76	Haid, Jr., Regis W.	54
Al-Mefty, Ossama	45, 89	Colen, Chaim B.	81	Halpern, Casey H.	70
Ames, Christopher P.	45, 81	Conesa, Gerardo	55	Hamani, Clement	45
Amin, Devin V.	81	Connolly, Jr., E. Sander	82, 89	Hamilton, D. Kojo	61, 62
Ammirati, Mario	81	Coplin, William M.	42	Handler, Michael H.	88, 91
Anderson, Paul A.	44	Coric, Domagoj	92, 93	Hanel, Ricardo A.	55
Anderson, Richard C.E.	88	Cosgrove, Rees	54	Harbaugh, Robert E.	76
Andrews, David W.	44, 46, 81	Couldwell, William T.	45, 55, 76	Harris, Odette	65, 66, 80
Angelov, Lilyana	46	Cozzens, Jeffrey W.	89	Harrop, James S.	43, 44, 45, 92, 93
Angevine, Peter D.	45, 54, 90	Cronk, Katharine M.	65	Hartl, Roger	80
Armonda, Rocco	49	Curry, William T.	72	Hayden Gephart, Melanie G.	68
Arraez Sanchez, Miguel A.	80	Daadi, Marcel M.	70	Heary, Robert F.	45, 46, 90
Arthur, Adam S.	54	Dacey, Jr., Ralph G.	53	Heilman, Carl B.	45
Asher, Anthony L.	46, 79	Dalyai, Richard	58	Heiss, John D.	80
Asthagiri, Ashok R.	87	Day, Arthur L.	88	Hinojosa, Jose	54
Ausman, James I.	55	Day, John Diaz	82	Hochberg, Leigh R.	87
Awad, Issam A.	54, 89	De Salles, Antonio A.F.	44	Hoh, Brian L.	55
Ayala-Soriano, Say	72	Deford, Frank	87	Holly, Langston T.	43, 44, 81
Baltuch, Gordon H.	47	Delamarter, Rick B.	62	Hooten, Kristopher Gray	57
Bambakidis, Nicholas	47, 58, 59, 82	Delashaw, Johnny B.	44, 55	Hopkins, III, L. Nelson	79
Barbaro, Nicholas M.	47, 80	DeMonte, Franco	44, 55, 80	Hyam, Jonathan A.	70
Barcia, Juan	89	Dempsey, Robert J.	42	Imber, Gerald	49
Barker, Frederick G.	44	Dewan, Michael C.	68	Iyer, Rajiv	70
Barrow, Daniel L.	55	Dhall, Sanjay S.	80	Jabbour, Pascal	46, 81
Batjer, H. Hunt	53, 54, 76, 79, 87	Ding, Dale	90	Jacques, Line	88
Batjer, Margaret	79	Dodd, Robert L.	89	Jallo, Jack	46, 88
Bejarano Herruzo, Bartolome	89	Drake, James M.	45	Jane, Jr., John A.	44, 45, 88
Belzberg, Allan J.	46, 55	Duckworth, Edward A.M.	54	Jensen, Frances E.	42
Benabid, Alim-Louis	45	Duffau, Hugues	42, 81	Jensen, Randy L.	44, 81
Bender, Matthew	67	Duhaime, Ann-Christine	55	Jimenez, David F.	45, 54
Bendok, Bernard R.	44, 55	Dumont, Aaron S.	42, 44, 88	Johnson, J. Patrick	80
Benzel, Edward C.	43, 47, 80, 93	Dumont, Travis Michael	57	Johnson, Michele M.	80
Berger, Mitchel S.	42, 45, 55, 76, 81	Dyer, E. Hunter	91	Kahane, Jeffrey	79
Bilsky, Mark H.	45, 46, 79, 89, 92	Eichholz, Kurt M.	43, 44	Kaiser, Michael G.	43, 54, 80
Blakeley, Jaishri	85	Elder, James B.	44	Kalfas, Iain H.	80
Bloch, Orin	72	Elias, W. Jeffrey	70, 88	Kalkanis, Steven N.	46, 79, 81, 82
Bohinski, Robert	46	Ellenbogen, Richard G.	45, 53, 76, 80	Kan, Peter	58
Boling, Warren W.	47, 80	Elliott, Cameron A.	57	Kang, Daniel Gene	62
Boockvar, John A.	44	Eng, Johnathan A.	45	Kano, Hideyuki	58
Boop, Frederick A.	88, 92	Epstein, Nancy E.	81	Kanter, Adam S.	61, 62, 83
Boulis, Nicholas M.	88, 91	Eskandar, Emad N.	54, 83	Kapliitt, Michael G.	89
Branch, Jr., Charles L.	80	Farace, Elana	44	Kasliwal, Manish K.	62
Brockmeyer, Douglas L.	81, 87	Fargen, Kyle Michael	57	Keating, Robert F.	54
Broggi, Giovanni	47, 54	Fehlings, Michael G.	45, 61, 85, 88	Kerwin, Thomas	44
Brooks, Nathaniel P.	44	Feigl, Guenther C.	72	Khan, Fahd R.	47
Brown, Jeffrey A.	47	Feldstein, Neil	80	Kiss, Zelma H.T.	45
Bruce, Jeffrey N.	44, 89	Fernandez-Miranda, Juan C.	55	Klimo, Jr., Paul	88
Buatti, John M.	76	Fessler, Richard G.	44, 46, 53, 54, 88, 91	Komotar, Ricardo J.	84
Bullock, M. Ross	44	Foot, Kelly D.	45, 54, 83	Kondziolka, Douglas	46, 53, 55
Bulsara, Ketan R.	82	Foroohar, Mina	42	Kopell, Brian H.	54
Burchiel, Kim J.	80	Fourney, Daryl R.	88	Korn, Stephen J.	42
Burger, Peter C.	49	Fridley, Jared	90	Koroshetz, Walter J.	42
Burton, Charles V.	47	Friedlander, Robert M.	80	Koski, Tyler R.	45, 83
Bydon, Ali	57	Friedman, Allan H.	42, 46	Koutourousiou, Maria	72
Cahill, Daniel P.	84	Friedman, William A.	76	Krieger, Mark D.	91
Camarata, Paul J.	45	Ganju, Aruna	57	Krishnaney, Ajit A.	43
Campbell, Peter	44	Geisler, Fred H.	92	Krisht, Ali F.	45, 88
Campos, Jose	89	Gerszten, Peter C.	46, 92	Kulkarni, Girish V.	67
Caputy, Anthony J.	54, 88	Getch, Christopher C.	53, 87, 93	Kumar, Krishna	67
Carmichael, S. Thomas	42	Ghogawala, Zoher	85	Kuntz, IV, Charles	45, 46
Casha, Steven	45	Gilmer, Holly	89	Kusak, Maria Elena	90
Cavanaugh, David A.	90	Gil-Robles, Santiago	81	La Marca, Frank	45, 81, 83
Cawley, C. Michael	80	Gluf, Wayne	54, 93	Landis, Story C.	53
Chang, Jason Jer Jia	65	Gokaslan, Ziya L.	89, 92	Lanford, Gregory B.	55
Chang, Steven D.	44, 46, 89	Golfinos, John G.	89	Lang, Frederick F.	44, 55, 71, 72
Chang, Susan	81	Gonda, David D.	68	Langer, David J.	81, 88
Charbel, Fady T.	45	Gonzalez, Nestor R.	57	Lanzino, Giuseppe	80, 88
Charles, David	83	Gonzalez-Llanos, Francisco	55	Larson, Paul S.	89
Chen, Peng R.	88	Goodell, Roger	53	Laske, Douglas	46
Cheng, Joseph S.	42, 89	Goodrich, James T.	54	Laurysen, Carl	54

SPEAKER INDEX

Lawson, Matthew F.	57, 58	Payner, Troy D.	55	Slavin, Konstantin V.	47, 70, 80, 83, 91
Lawton, Michael T.	45, 54, 80, 82, 88	Penn, Richard D.	91	Sloan, Andrew E.	44
Lee, John Y.K.	80	Piepmeier, Joseph M.	85	Slotkin, Jonathan R.	88
Lee, Joung H.	89	Pierot, Laurent	58	Smith, Justin S.	44, 61, 62
Lesniak, Maciej S.	54	Pilitsis, Julie G.	47, 87, 91	Solomon, Robert A.	80
Levy, Elad I.	44, 79	Pimenta, Luiz	54	Somashekar, Vinay	90
Levy, Robert M.	80	Pincus, David W.	88	Souweidane, Mark M.	45
Ley, Luis	54	Pollack, Brian F.	84	Spinner, Robert J.	46, 55
Liau, Linda M.	42, 55, 79	Pollock, Kimberley	42	Steinmetz, Michael P.	44, 46, 57, 80, 88, 91
Lim, Michael	44	Pouratian, Nader	42, 44	Stippler, Martina	90
Limb, Charles J.	79	Powell, Michael	81	Storm, Phillip B.	55
Ling, Geoffrey S.F.	87	Prevedello, Daniel M.	44	Strayer, Andrea L.	44
Linskey, Mark E.	46, 49, 82	Prieto, Ruth	80	Stredney, Don	44
Liu, John C.	44	Proctor, Mark R.	54, 68, 69	Styliaras, John Christos	90
Lobel, Darlene A.	44	Putukian, Margot	76	Sundaresan, Narayan	89
Lonser, Russell R.	44, 53, 79	Quinones-Hinojosa, Alfredo	85, 89	Sutherland, Garnette R.	71, 82
Macdonald, R Loch	54, 58	Raabe, Andreas	88	Teo, Charles	44, 45, 55
Machado, Andre	45	Raffel, Corey	68, 91	Theodore, Nicholas	81, 90
Madden, Christopher J.	46	Ragel, Brian T.	82, 93	Theodosopoulos, Philip V.	44
Mahmood, Asim	65	Raksin, Patricia B.	88	Thompson, Jr., Byron Gregory	45, 82
Mallory, Grant W.	67	Rao, Ganesh	49, 53, 79	Thompson, Eric M.	68
Mamelak, Adam N.	70	Ratliff, John K.	42, 46, 81	Timmons, Shelly D.	44, 65, 66, 88, 91
Mammis, Antonios	67	Reddy, Rajesh	90	Tomori, Toshiaki	65
Maniker, Allen H.	46, 55	Regis, Jean M.	80, 87	Toms, Steven A.	81
Manley, Geoffrey T.	44, 80	Rekate, Harold L.	44, 81	Torres, Roland A.	55
Manrique, Miguel	79	Resnick, Daniel K.	49, 79, 80, 82	Tredway, Trent L.	44
Martin, Neil A.	81, 89	Rezai, Ali R.	44, 79	Trost, Gregory R.	43, 54, 80, 92
Matheus, Virgilio	65	Rhines, Laurence D.	46, 89, 92	Tsai, Eve C.	88, 91
Maurer, Paul K.	80, 85, 88	Rhoton, Jr., Albert L.	42, 46, 49, 80	Tumialan, Luis M.	54
Mazzola, Catherine A.	54, 57	Rigamonti, Daniele	81	Tyler-Kabara, Elizabeth C.	81
McCall, Todd D.	81	Riina, Howard A.	45, 55	Urculo, Enrique	55
McChrystal, Stanley	49	Riley, Jonathan	53	Valadka, Alex B.	42, 54, 80, 88, 91
McCormick, Paul C.	45, 80, 85, 87	Ringer, Andrew J.	44	Vates, G. E.	42
McCutcheon, Ian E.	81	Riva-Cambria, Jay	92	Venugopal, Sandya	65
McDermott, Michael W.	44, 85, 89	Robaina, Francisco	80	Vezenardoglu, Erol	44, 55
McGirt, Matthew	61	Roberts, David W.	47, 89, 93	Vibbert, Matthew	46
McKhann, II, Guy M.	42, 47	Robinson, Shenandoah	55	Viswanathan, Ashwin	87
Meacham, Jon	53	Roda, Jose Maria	80	Vogelbaum, Michael A.	84, 93
Mericle, Robert A.	67	Roitberg, Ben Z.	44	Voorhies, Jason M.	68
Meyer, Fredric B.	82	Rosen, Charles D.	47	Walters, Beverly C.	91
Mian, Matthew Kamal	70	Rosenow, Joshua M.	67, 82	Wang, Marjorie C.	45
Midha, Rajiv	46, 55, 87, 88	Rosenwasser, Robert H.	54	Wang, Michael Y.	43, 83, 92
Mindea, Stefan A.	81	Rost, Natalia	42	Watridge, Clarence B.	89
Mitchell, William	42	Rughani, Anand	67	Weaver, Jason A.	46
Mocco, J.D.	44	Rumia, Jose	80	Weaver, Kyle	72
Moghekar, Abhay	65	Rutka, James T.	88	Webb, Adam	42
Mogilner, Alon Y.	47	Sachs, Adam J.	67	Webb, K. Michael	55
Monje-Deisseroth, Michelle	42	Sagher, Oren	47	Weinberg, Jeffrey S.	93
Moore, Leon E.	87	Samson, Duke S.	76, 82	Welch, William C.	54
Morcos, Jacques J.	45, 80	Samuels, Owen B.	42	Wellons, III, John C.	45
Mukherjee, Debraj	57	Sanai, Nader	81	Wharen, Robert E.	47
Mummaneni, Praveen V.	43, 45, 46, 83	Sandberg, David I.	91	Wicks, Robert Thomas	58
Myseros, John S.	88	Sandhu, Faheem A.	54	Wilson, John A.	88
Naftel, Robert Partlow	68	Sawaya, Raymond	53, 76, 81	Winfrey, Christopher J.	47, 67, 81, 91
Nanda, Anil	79	Scarrow, Alan M.	49, 89, 91	Wisoff, Jeffrey H.	92
Narayan, Raj K.	44, 45	Schirmer, Clemens M.	44	Witham, Timothy F.	54
Nariai, Tadashi	58	Schmidt, Meic H.	89	Wolfla, Christopher E.	53
Narotam, Pradeep K.	65	Schroeder, Henry W.	45	Wolinsky, Jean-Paul	54, 80
Nockels, Russ P.	88	Schulder, Michael	55	Woo, Henry H.	82
Nussbaum, Eric S.	58	Schwartz, Theodore H.	45	Woodard, Eric J.	80, 90
Ogasawara, Kuniaki	87	Sciubba, Daniel M.	83	Yang, Isaac	44
Ogden, Alfred T.	44	Scott, Ciera	67	Yang, Lynda J.	46, 55
Ogilvy, Christopher S.	55	Scott, R. Michael	88	Yarbrough, Chester	68
Okonkwo, David O.	44, 45, 90	Sekhar, Laligam N.	53, 89	Yoon, Soo Han	68
Olavarria, Greg	91	Selden, Nathan R.	87	Yoshor, Daniel	81
Oldfield, Edward H.	81	Sen, Chandra N.	80	Yu, John S.	90
Oliver, Bartolome	55	Sethi, Khalid A.	55	Zafonte, Ross	91
Olson, Jeffrey J.	46, 89	Shaffrey, Christopher I.	45, 46, 82, 83	Zager, Eric L.	46, 88
O'Toole, John E.	43, 44, 45	Shaffrey, Mark E.	44, 89, 93	Zaghloul, Kareem A.	47, 70
Oyesiku, Nelson M.	81, 82, 87	Sharan, Ashwini D.	44, 53, 80, 91	Zavarella, Salvatore M.	68
Palfi, Stephane	70	Sharma, Sunjay Vishnu	65	Zipfel, Gregory J.	42
Pang, Dachling	88	Sheehan, Jason P.	44, 46, 72, 89	Zuccarello, Mario	89
Parajon, Avelino	44, 54	Sheehan, Jonas	93	Zussman, Benjamin M.	90
Park, John K.	42, 93	Shutter, Lori A.	44		
Parker, Scott L.	57	Siddiqui, Adnan H.	44, 55, 58, 59, 82		
Parsa, Andrew T.	44, 55	Sillay, Karl A.	45		
Parsons, Donald W.	84	Skirboll, Stephen	72		

**Enhance Your
Leadership Skills.**

**Advance Your
Education.**

**Further Your
Career.**

**Join the Congress of Neurological
Surgeons today for access to:**

Complimentary subscriptions to
world-class publications –

- *NEUROSURGERY*[®]
- *Operative Neurosurgery*
- *Clinical Neurosurgery*
- *Congress Quarterly*

Online Courses & Lectures
Online Resources
Networking Opportunities
Fellowship Awards

Plus valuable discounts on SANS Lifelong
Learning, the CNS Annual Meeting and more.

**Visit www.cns.org to learn
more and apply today!**



**CONGRESS OF
NEUROLOGICAL
SURGEONS**

10 N. Martingale Road, Suite 190, Schaumburg, Illinois 60173
Phone: 847-240-2500 Toll-free: 877-517-1CNS
Fax: 847-240-0804 info@1cns.org www.cns.org