AANS ANNUAL MEETING
PHILADELPHIA
MAY 1–5 2010

NEUROSURGERY ON FIRE!
PROGRAM GUIDE
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 RECOGNITION</td>
<td>5</td>
</tr>
<tr>
<td>INTRODUCTION, AWARDS AND LECTURES</td>
<td>6</td>
</tr>
<tr>
<td>SPECIAL EVENTS</td>
<td>24</td>
</tr>
<tr>
<td>History Section Dinner, International Reception, NeurosurgeryPAC, Neurosurgical Top Gun Competition, Opening Reception</td>
<td></td>
</tr>
<tr>
<td>NURSE &amp; PHYSICIAN EXTENDERS’ PROGRAM</td>
<td>25</td>
</tr>
<tr>
<td>Advancements in Neurotrauma Care, Endovascular Management of Ischemic and Hemorrhagic Stroke, Mid-Level Practitioner Luncheon</td>
<td></td>
</tr>
<tr>
<td>RESIDENT, FELLOW AND MEDICAL STUDENT ACTIVITIES</td>
<td>27</td>
</tr>
<tr>
<td>Marshal Program, Neurosurgical Top Gun Competition, Young Neurosurgeons Luncheon</td>
<td></td>
</tr>
<tr>
<td>AANS RESOURCE CENTER</td>
<td>29</td>
</tr>
<tr>
<td>AANS Online Career Center, Educational DVDs, Education and Meetings, NREF, Publications, Recorded Presentations, and Silent Auction Bidding Stations</td>
<td></td>
</tr>
<tr>
<td>SECTION ACTIVITIES</td>
<td>32</td>
</tr>
<tr>
<td>AANS AND ANCILLARY MEETINGS</td>
<td>33</td>
</tr>
<tr>
<td>AANS COMMERCIAL SUPPORTERS</td>
<td>37</td>
</tr>
<tr>
<td>EXHIBITOR INFORMATION</td>
<td>38</td>
</tr>
<tr>
<td>Exhibitor Information, Exhibitor Listing–Alphabetical, Exhibitor Listing–by Booth Number, Exhibitor Listing–by Product and Service Category, Floor Plan</td>
<td></td>
</tr>
<tr>
<td>SATURDAY PROGRAM</td>
<td>68</td>
</tr>
<tr>
<td>International Practical Clinics, International Symposium, Practical Clinics</td>
<td></td>
</tr>
<tr>
<td>SUNDAY PROGRAM</td>
<td>72</td>
</tr>
<tr>
<td>Opening Reception, Practical Clinics</td>
<td></td>
</tr>
<tr>
<td>MONDAY PROGRAM</td>
<td>81</td>
</tr>
<tr>
<td>AANS Business Meeting, Breakfast Seminars, Distinguished Service Award, History Section Annual Dinner, Hunt-Wilson Lecture, International Reception, Mid-Level Practitioner Lunch Session, Presidential Address, Richard C. Schneider Lecture, Ronald L. Bittner Lecture, Scientific Sessions, Visit the Exhibit Hall, YNS Lunch Session</td>
<td></td>
</tr>
<tr>
<td>TUESDAY PROGRAM</td>
<td>94</td>
</tr>
<tr>
<td>Breakfast Seminars, Cushing Medalist, Cushing Oration, Rhoto Family Lecture, Section Sessions, Van Wagenen Fellow Presentation, Van Wagenen Lecture, Visit the Exhibit Hall</td>
<td></td>
</tr>
<tr>
<td>WEDNESDAY PROGRAM</td>
<td>106</td>
</tr>
<tr>
<td>Breakfast Seminars, Humanitarian Award, Louise Eisenhardt Lecture, Section Sessions, Theodore Kurze Lecture, Visit the Exhibit Hall</td>
<td></td>
</tr>
<tr>
<td>CONTINUING MEDICAL EDUCATION (CME) AND DISCLOSURE LISTING</td>
<td>136</td>
</tr>
<tr>
<td>FLOOR PLANS</td>
<td>139</td>
</tr>
</tbody>
</table>

www.AANS.org
<table>
<thead>
<tr>
<th>Time</th>
<th>FRIDAY, APRIL 30</th>
<th>SATURDAY, MAY 1</th>
<th>SUNDAY, MAY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 AM</td>
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<td>8:00 AM</td>
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<td>International Master Practical Clinics</td>
<td>AM Practical Clinics</td>
</tr>
<tr>
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<td></td>
<td>Lunch Break</td>
<td>All Day AM and PM Practical Clinics</td>
</tr>
<tr>
<td>9:00 AM</td>
<td></td>
<td>International Symposium</td>
<td>Lunch Break</td>
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<tr>
<td>9:30 AM</td>
<td></td>
<td></td>
<td>PM Practical Clinics</td>
</tr>
<tr>
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<tr>
<td>10:30 AM</td>
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<td></td>
<td>Opening Reception</td>
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<td>11:00 AM</td>
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<td>Lunch Break</td>
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</tr>
</tbody>
</table>

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2010 RECOGNITION

ALEX B. VALADKA, MD, FACS
Richard C. Schneider Lecture
Plenary Session I
Monday, May 3

ANDRES M. LOZANO, MD, PHD
Hunt-Wilson Lecture
Plenary Session I
Monday, May 3

KATIE ORRICO, JD
Distinguished Service Award
Plenary Session I
Monday, May 3

WILLIAM T. COULDWELL, MD, PHD
Ronald L. Bittner Lecture
Scientific Session I – Tumor
Monday, May 3

CHRISTOPHER M. LOFTUS, MD, FACS
Rhoton Family Lecture
Plenary Session II
Tuesday, May 4

ROBERTO C. HEROS, MD
Cushing Medalist
Plenary Session II
Tuesday, May 4

NEWT GINGRICH
Cushing Oration
Plenary Session II
Tuesday, May 4

PATRICK J. KELLY, MD, FACS
Van Wagenen Lecture
Plenary Session II
Tuesday, May 4

MARY SUE COLEMAN, PHD
Louise Eisenhardt Lecture
Plenary Session III
Wednesday, May 5

ALBERT L. RHOTON JR., MD
Theodore Kurze Lecture
Plenary Session III
Wednesday, May 5

TIMIR BANERJEE, MD
Humanitarian Award
Plenary Session III
Wednesday, May 5

JOSE G. MARTIN-RODRIGUEZ, MD
AANS International Lifetime
Recognition Award
International Reception
Monday, May 3
ABOUT AANS

Founded in 1931 as the Harvey Cushing Society, the American Association of Neurological Surgeons (AANS) is a scientific and educational association with over 7,600 members worldwide. The AANS is dedicated to advancing the specialty of neurological surgery in order to provide the highest quality of neurosurgical care to the public. All Active members of the AANS are board certified by the American Board of Neurological Surgery, the Royal College of Physicians and Surgeons of Canada, or the Mexican Council of Neurological Surgery, A.C.

Neurosurgery is the medical specialty concerned with the prevention, diagnosis, treatment and rehabilitation of disorders that affect the spinal column, spinal cord, brain, nervous system and peripheral nerves. For more information on what neurosurgeons do, visit our public pages at www.NeurosurgeryToday.org.

Troy M. Tippett, MD

Troy M. Tippett, MD, was named president of the American Association of Neurological Surgeons (AANS) at the 77th AANS Annual meeting in San Diego, May 2-6, 2009. A member of the AANS since 1979, he has served on the AANS Board of Directors since 2004, most recently completing a term as president elect, one-year term as vice president, and three-year term as chair of the AANS/CNS Washington Committee.

He is a member of the following committees: Bylaws, Executive, Finance, Neurosurgery Research and Education Foundation Executive Council, NeurosurgeryPAC, Board of Directors, and Strategic Planning. He served as chair of the prior PAC, AANS PAC. Dr. Tippett received the Distinguished Service Award from the AANS in 2003 and from the Congress of Neurological Surgeons (CNS) in 2008.

Dr. Tippett has been in private practice and a member of the Neurosurgical Group in Pensacola, Fla. since 1976, and medical director of this practice since 1988. He completed his undergraduate work at the University of Missouri, Columbia, and received his medical degree in 1969 from the University of Tennessee Center for the Health Sciences in Memphis, Tenn. He completed his internship at City of Memphis Hospitals and neurosurgery residency at the University of Tennessee Center for the Health Sciences.

He served as president of the Florida Medical Association from 2005 to 2006. He also served as president of the Neurosurgical Society of America, the Florida Neurosurgical Society and the Escambia County Medical Society. He recently completed service as chair of the Florida delegation to the American Medical Association. He is a member of many professional organizations including the CNS, the Southern Neurosurgical Society and is a Fellow of the American College of Surgeons.

Dr. Tippett has authored papers and articles for scientific journals on topics including carotid endarterectomy, disc herniation, and cervical spine procedures.

CUSHING CIGARETTE BOX

Each year at the Annual Meeting of the American Association of Neurological Surgeons (AANS), the outgoing president is presented with a special momento of his year in office—the “Cushing Cigarette Box”—representing more than a half century of neurosurgical tradition. The sterling silver Cushing Cigarette Box was originally presented to Harvey Cushing, MD, by the surgical staff at Peter Bent Brigham Hospital on April 14, 1931, commemorating Dr. Cushing’s 2000th verified intracranial tumor operation. Beginning with this cherished tradition back in 1959, Dr. Cushing’s nephew, E. H. Cushing, MD, presented the cigarette box to the AANS president and asked that it be passed on to each succeeding president as a symbol of the Association’s highest office.

AANS PRESIDENTS

2009–10 Troy M. Tippett, MD
2008–09 James R. Bean, MD
2007–08 Jon H. Robertson, MD
2006–07 Donald O. Quest, MD
2005–06 Fremont P. Wirth Jr., MD
2004–05 Robert A. Ratcheson, MD
2003–04 A. John Popp, MD
2002–03 Roberto C. Heros, MD
2001–02 Stan Pelofsky, MD
2000–01 Stewart B. Dunsker, MD
1999–00 Martin H. Weiss, MD, FACS
1998–99 Russell L. Travis, MD
1997–98 Edward R. Laws Jr., MD
1996–97 J. Charles Rich Jr., MD
1995–96 Sidney Tolchim, MD
1994–95 Edward L. Seljeskog, MD, PhD
1993–94 Julian T. Hoff, MD
1992–93 Mervyn Bagan, MD, MPH
1991–92 James T. Robertson, MD
1990–91 David L. Kelly Jr., MD
1989–90 Albert L. Rhoto Jr., MD
1988–89 George T. Tindall, MD
1987–88 Henry D. Garrettson, MD
1986–87 Robert G. Ojemann, MD
1985–86 Russel H. Patterson Jr., MD
1984–85 Sidney Goldring, MD
1983–84 Byron C. Pevehouse, MD
1982–83 Frank R. Wrenn, MD
1981–82 W. Kemp Clark, MD
1980–81 Robert B. King, MD
1979–80 W. Eugene Stern, MD
1978–79 Donald F. Dohn, MD
1977–78 Charles G. Drake, MD
1976–77 Lester A. Mount, MD
1975–76 Richard L. De Sausure Jr., MD
1974–75 Richard C. Schneider, MD
1973–74 Lyle A. French, MD
1972–73 William F. Meacham, MD
1971–72 Guy L. Odom, MD
1970–71 Collin S. MacCarty, MD
1969–70 A. Earl Walker, MD
1968–69 Donald D. Matson, MD
1967–68 Henry G. Schwartz, MD
1966–67 Eben Alexander Jr., MD
1965–66 Francis Murphey, MD
1964–65 Frank H. Mayfield, MD

www.AANS.org
1963–64  Barnes Woodhall, MD  
1962–63  David L. Reeves, MD  
1961–62  Leonard T. Furlow, MD  
1960–61  J. Grafton Love, MD  
1959–60  James L. Poppen, MD  
1958–59  Bronson S. Ray, MD  
1957–58  Howard A. Brown, MD  
1956–57  Leo M. Davidoff, MD  
1955–56  Frederic Schreiber, MD  
1954–55  Harry Wilkins, MD  
1953–54  Edgar A. Kahn, MD  
1952–53  William J. German, MD  
1951–52  Paul C. Bucy, MD  
1950–51  W. Edward Chamberlain, MD  
1949–50  Frank Tumball, MD  
1948–49  Winchell M. C. Craig, MD  
1947–48  Cobb Pilcher, MD  
1946–47  Frank R. Teachenor, MD  
1944–46  Franc D. Ingraham, MD  
1943–44  Edgar. F. Fincher Jr., MD  
1942–43  Eric Oldberg, MD  
1941–42  Tracy J. Putnam, MD  
1940–41  Cornelius Dyke, MD  
1939–40  R. Eustace Semmes, MD  
1938–39  Louise Eisenhardt, MD  
1937–38  Temple Fay, MD  
1936–37  Kenneth G. McKenzie, MD  
1935–36  Merrill C. Sosman, MD  
1934–35  R. Glen Spurling, MD  
1933–34  John F. Fulton, PhD  
1932–33  William P. Van Wagenen, MD

SPECIAL LECTURERS

Cushing Orator

In 1965 when the AANS was still the Harvey Cushing Society, the board directed that each year an invitation be extended to “one eminent in human affairs,” to deliver the Cushing Oration at the annual meeting. The Oration honors Dr. Harvey Cushing, whose own “wide range of interests went far beyond the operating suite” and is regarded as the highest honor the organization can bestow.

2010 Cushing Orator

Newt Gingrich, PhD

Newt Gingrich, PhD, is well-known as the architect of the “Contract with America” that led the Republican Party to victory in 1994 by capturing the majority in the U.S. House for the first time in 40 years. As Speaker from 1995 to 1999, he disrupted the status quo by moving power out of Washington and back to the American people. Under his leadership, Congress passed welfare reform, the first balanced budget in a generation, and the first tax cut in 16 years. Widely recognized for his commitment to a better health system for all Americans, his leadership helped save Medicare from bankruptcy, prompted FDA reform to help the seriously ill, and initiated a new focus on research, prevention, and wellness.

Mr. Gingrich was elected to Congress in 1978 where he served the Sixth District of Georgia for 20 years. He received his Bachelor’s degree from Emory University and Master’s and Doctorate in Modern European History from Tulane University. Before his election to Congress, he taught History and Environmental Studies at West Georgia College for eight years.

Mr. Gingrich is prolific on the media front, having published 18 fiction and non-fiction books, including several New York Times best-sellers. Mr. Gingrich and his wife, Callista, host and produce documentaries. Recent films include Ronald Reagan: Rendezvous with Destiny, and We Have the Power and Rediscovering God in America. He also serves as a news and political analyst for the Fox News Channel.

Mr. Gingrich is a leading advocate of increased Federal funding for basic science research. In 2001, he was the recipient of the Science Coalition’s first Science Pioneer award, given to him for his outstanding contributions to educating the public about science and its benefits to society.

Past Cushing Orators

2009  Uwe E. Reinhardt, PhD  
2008  Douglas Brinkley, MD  
2007  Thomas Friedman  
2006  George F. Will  
2005  Edmund Morris  
2004  Ken Burns  
2003  Henry A. Kissinger, PhD  
2002  Benazir Bhutto  
2001  Tom Brokaw  
2000  Doris Kearns Goodwin  
1999  President George Herbert Walker Bush  
1998  Eric Wieschaus, PhD  
1997  William J. Bennett, PhD  
1996  William F. Buckley, Jr.  
1995  General Colin L. Powell  
1994  Beverly Sills  
1992  Susan Eisenhower  
1992  Ronald Z. Sagdeev, PhD  
1991  Yevgeny Yevtushenkov  
1990  President James Earl Carter, Jr.  
1989  Theodore Cooper, MD, PhD  
1988  The Hon. Brian Dickson  
1987  H. Ross Perot  
1986  The Hon. Richard D. Lamm  
1985  Raymond E. Arvidson, PhD  
1984  Robert M. Rosenzweig, PhD  
1983  Edmund D. Pellegrino, MD  
1982  Mortimer J. Adler, PhD  
1981  Julius Axelrod, PhD  
1980  The Hon. Kingman Brewster  
1979  The Hon. Paul Rogers  
1978  C. Rollins Hanlon, MD  
1977  Eli Ginzberg, PhD  
1976  Robert O. Egeberg, MD  
1975  Paul W. McCracken, MD  
1974  Malcolm Moos, PhD  
1973  Wernher von Braun, PhD  
1972  Robert Q. Marston, MD  
1971  Wilder Penfield, MD  
1970  Edwin L. Crosby, MD  
1969  John S. Millis, PhD  
1968  R. Buckminster Fuller, PhD  
1967  William H. Stewart, MD  
1966  Philip Handler, MD  
1965  Louise Eisenhardt, MD

Richard C. Schneider Lecture

The Richard C. Schneider Lecture is made possible, thanks to an endowment established by the University of Michigan and Dr. Julian T. “Buzz” Hoff.

Alex B. Valadka, MD, FACS

Alex B. Valadka, MD, FACS, is chief of Adult Neurosciences and Chief of Neurotrauma at Seton Brain and Spine Institute in Austin, Texas. From 2006-2009, he was professor and vice chairman of the
Dr. Valadka was the Initiating Investigator for a $35 million Department of Defense grant analyzing mild traumatic brain injury. This grant is a consortium involving more than 20 separate principal investigators from several Houston academic centers and the Transitional Learning Center in Galveston. He also serves as a consultant for Mild Traumatic Brain Injury to the Commissioner of Major League Baseball. He was recently appointed to a four-year term on Neurological Sciences and Disorders Study Section K Section at the National Institutes of Health.

A prolific expert in the field of neurotrauma, Dr. Valadka has published 65 peer-reviewed articles, 90 abstracts, 80 editorials/commentaries, 30 book chapters, and delivered 150 presentations at national and international symposia.

The Rhoton Family Lecture

The Rhoton Family Lecture is made possible thanks to an endowment established by Dr. Albert L. Rhoton Jr. in honor of his family.

Van Wagenen Lecture

The Van Wagenen Lecture is made possible thanks to a bequest from Dr. William P. and Mrs. Abigail Van Wagenen to AANS.

Ronald L. Bittner Lecture

The Ronald L. Bittner Lecture is made possible thanks to an endowment established by Mrs. E. Laurie Bittner, who made the gift in support of brain tumor research, in memory of her late husband who died of a glioma.
William T. Couldwell, MD, PhD

William Couldwell, MD, PhD, a native of Canada, received his medical and PhD degrees from McGill University, Montreal, Quebec. He pursued his residency in neurological surgery at the University of Southern California (USC) in Los Angeles.

Upon completion of his residency, Dr. Couldwell pursued fellowship training in Canada at the Montreal Neurological Institute and in Switzerland. He subsequently joined the faculty at USC and in 1996, accepted a position as professor and chairman of the Department of Neurological Surgery at the New York Medical College (1996-2001).

Since 2001, Dr. Couldwell has served as professor and chair of the Department of Neurosurgery at the University of Utah in Salt Lake City. He serves as a director of the American Board of Neurological Surgery, and in 2009, was appointed secretary of the AANS for a three-year term.

He has authored over 250 peer-reviewed publications (of more than 450 total publications) and has been the recipient of several federal (NIH) and other research grants. His clinical focus is the surgical management of skull base tumors, while his research focuses on defining new therapies based on molecular targets for meningiomas and pituitary tumors.

Hunt–Wilson Lecture

The Hunt–Wilson Lecture is made possible thanks to an endowment established by Dr. Timir Banerjee, in honor of his mentors, William Hunt, MD and Charles Wilson, MD.

Andres M. Lozano, MD, PhD, FRCS

Andres M. Lozano, MD, PhD, FRCS, is professor and RR Tasker Chair in Functional Neurosurgery at the University of Toronto, senior scientist at Toronto Western Research Institute, and holds a Tier 1 Canada Research Chair in Neuroscience.

Dr. Lozano received his medical degree from the University of Ottawa and his doctorate in neurobiology and neurosurgical training from McGill University. He was appointed to the Department of Surgery at the University of Toronto in 1991 and was named full professor in 1999.

Dr. Lozano’s research is focused on developing novel surgical treatments for neurological and psychiatric disorders, such as Parkinson’s disease, dystonia, depression and Alzheimer’s disease. His work has appeared in more than 300 peer-reviewed publications and he has been invited lecturer or visiting professor throughout the world. Dr. Lozano is one of the world’s most highly cited scientists, ranking in the top five in the fields of both deep brain stimulation and Parkinson’s disease.

He is the editor in chief of the Textbook of Stereotactic and Functional Neurosurgery. He serves on the international editorial board of ten journals.

Dr. Lozano has served on the board and executive councils of several international organizations including the founding scientific advisory board of the Michael J. Fox Foundation, and has been president of both the American and World Society for Stereotactic and Functional Neurosurgery.

Dr. Lozano has been the recipient of numerous awards including the Gold Medal of the Royal College of Physicians and Surgeons of Canada, the Penfield Award, the Order of Merit of Spain and the Jonas Salk Award, and has been elected as fellow of the Royal Society of Canada.

Theodore Kurze Lecture

The Theodore Kurze Lecture is made possible thanks to an endowment established by Dr. John J. and Mrs. Mary Guarnaschelli to honor and recognize his mentor.

Albert L. Rhoton Jr., MD

Albert L. Rhoton Jr., MD, received his medical degree from Washington University School of Medicine in 1959, graduating with the highest academic standing. He completed his neurosurgical training at Washington University and joined the staff of the Mayo Clinic in Rochester, MN in 1965. He became professor and chair of the Department of Neurological Surgery at the University of Florida in 1972.

Dr. Rhoton has served as president of the AANS, the CNS, the Society of Neurological Surgeons, the North American Skull Base Society, the International Interdisciplinary Congress on Craniofacial and Skull Base Surgery, the Florida Neurosurgical Society, and the International Society for Neurosurgical Technology and Instrument Invention.

He served as Honored Guest of the CNS in 1993 and was awarded the Cushing Medal of the AANS in 1998, the highest honors of the two respective organizations. In 2001, he was awarded the Medal of Honor of the World Federation of Neurosurgical Societies. He has served as either Honored Guest or elected to Honorary Membership in neurosurgical societies in Africa, Asia, Australia, Europe, and North and South America.

Dr. Rhoton has published over 400 scientific papers. He recently completed the Millennium and Anniversary Issues of Neurosurgery and a book entitled Cranial Anatomy and Surgical Approaches.

He received an Alumni Achievement Award from Washington University School of Medicine and both a Distinguished Faculty Award and a Lifetime Achievement Award from the University of Florida. Friends, colleagues, and former residents contributed nearly $2 million to the University of Florida Foundation to create the Rhoton Chairman’s Endowed Professorship at the University of Florida, and that gift has
grown to more than $6 million. This is in addition to 11 endowed chairs which Dr. Rhoton has raised for neurosurgery over the years.

**Recipients of Honorary Membership**

- **2007**  
  James A. Ferrendelli, MD  
  Darell D. Bigner, MD, PhD  
  Albert J. Aguayo, MD  
- **2005**  
  Armando Basso, MD  
  Jacques Brotchi, MD, PhD  
  Carl H. Hauber, JD, CAE  
- **1995**  
  John W. Holter  
  H. Alphans D. Walder, MD, PhD  
- **1993**  
  M. Gazi Yasargil, MD  
  Chung-Cheng Wang, MD  
  Ramamurthi, MD  
- **1987**  
  Bernard Pertuiset, MD  
  Emil Pasztor, MD  
  Willem Luyendijk, MD  
- **1986**  
  Bernard Penfield, MD  
  Hajime Handa, MD  
  Murray Goldstein, DO, MPH  
- **1984**  
 野村義三, MD  
  Eben Alexander Jr., MD  
  Guy L. Odom, MD  
- **1982**  
  Bronson S. Ray, MD  
  W. James Gardner, MD  
  W. Eugene Stern, MD  
- **1980**  
  Paul C. Bucy, MD  
  Henry G. Schwartz, MD  
  William H. Sweet, MD

**AWARD RECIPIENTS**

**Cushing Medalist**

**Roberto C. Heros, MD**

Roberto C. Heros, MD, is professor, co-chair and program director in the Department of Neurological Surgery at the University of Miami Leonard M. Miller School of Medicine, positions he has held since 1995. He is also founding director of the University of Miami International Health Center. His clinical areas of expertise include cerebrovascular, skull base, aneurysms, arteriovenous malformations, and brain tumors.

A native of Havana, Cuba, Dr. Heros left in exile after the Communist takeover in 1960. He participated as a paratrooper in the Bay of Pigs invasion and was captured. After serving two years in prison, he was released as a result of an exchange with the United States government.

Dr. Heros received his medical degree in 1968 from the University of Tennessee Center for the Health Sciences in Memphis, TN. He undertook his internship and first year general surgery residency at the Massachusetts General Hospital in Boston and then served in the US Air Force as Major for two years. He completed his residency at the Massachusetts General Hospital, Harvard Medical School.

He served on the faculty of the University of Pittsburgh as an assistant professor, but returned to Massachusetts General Hospital in 1980 to become director of Cerebrovascular Surgery, attaining full professorship at Harvard in 1989. Subsequently, he served as the Lyle A. French Professor and Chair of the Department of Neurosurgery at the University of Minnesota from 1989-1995.

Dr. Heros served as AANS president in 2002-2003. Active on the international neurosurgery front, Dr. Heros served as president of the recent XIV World Congress of Neurological Surgery of the World Federation of Neurosurgical Societies (WFNS) in Boston, and is currently an honorary president of the WFNS. Dr. Heros travels worldwide as a presenter, honored guest, and visiting professor.

**Past Cushing Medalists**

- 2009 Edward Hudson Oldfield, MD
- 2008 Charles B. Wilson, MD
- 2007 Robert G. Grossman, MD
- 2006 David G. Kline, MD
- 2005 Martin H. Weiss, MD
- 2004 John A. Jane Sr., MD, PhD
- 2003 Stewart B. Dunker, MD
- 2002 Edward R. Laws Jr., MD
- 2001 Julian T. Hoff, MD
- 2000 Russell H. Patterson Jr., MD, FACS
- 1999 David J. Kelly Jr., MD
- 1998 Albert L. Rhoton Jr., MD
- 1997 Robert G. Ojemann, MD
- 1996 Shelley N. Chou, MD, PhD
- 1995 Richard De Saussure, MD
- 1994 Byron C. Pevehouse, MD
- 1993 Sidney Goldring, MD
- 1992 W. Eugene Stern, MD
- 1991 William F. Collins, MD
- 1990 Robert B. King, MD
- 1989 Lester A. Mount, MD
- 1988 Charles G. Drake, MD
- 1987 William F. Meacham, MD
- 1986 Lyle French, MD
- 1985 Francis Murphy, MD
- 1984 Eben Alexander Jr., MD
- 1983 Guy L. Odom, MD
- 1982 W. James Gardner, MD
- 1981 Bronson S. Ray, MD
- 1980 Paul C. Bucy, MD
- 1979 Henry G. Schwartz, MD
- 1978 William H. Sweet, MD
- 1977 Frank H. Mayfield, MD

**Distinguished Service Award**

The Distinguished Service Award is one of the highest honors bestowed by the American Association of Neurological Surgeons, recognizing exemplary service to the AANS and the field of neurosurgery. The award pays tribute to the contributions of remarkable neurosurgeons within their profession.
Katie O. Orrico, JD

Katie O. Orrico, JD, is the Director of the Washington Office of the AANS and CNS, a position she has held since 1997. She has represented organized neurosurgery before the US Congress and federal agencies since 1985. Ms. Orrico also serves on the Executive Committee of the AANS Political Action Committee, Neurosurgery PAC, and is the executive director of Neurosurgeons to Preserve Health Care Access, the AANS and CNS non-profit advocacy organization. She is licensed to practice law in the Commonwealth of Virginia and is a registered lobbyist with the US Congress.

A native Washingtonian, she received her BA degree in sociology, cum laude, from The Catholic University of America. Upon graduation, she worked as a legislative assistant for CLP Associates, a health advocacy firm, where she represented the AANS and CNS. Ms. Orrico earned a JD in 1991 from the George Mason University School of Law.

As the Director of the AANS/CNS Washington Office, Ms. Orrico works closely with other medical specialty societies on several legislative coalitions. She is a founding member of the Alliance of Specialty Medicine, which represents ten national medical specialty societies with nearly 100,000 physician members. Ms. Orrico is a member of the Alliance’s board of directors.

Ms. Orrico was instrumental in helping to establish a national medical liability reform coalition – Doctors for Medical Liability Reform, founded by the AANS and CNS in 2004. In 2008, she was invited to serve as a member of the steering committee of the Partnership to Improve Patient Care, a new initiative whose mission is to raise awareness about the value of well-designed comparative effectiveness research.

Past Recipients of the Distinguished Service Award

2009  In memory of Samuel J. Hassenbusch, MD, PhD
2008  Peter W. Carmel, MD
2007  Mary Louise Sanderson
2006  Lyla Leibrock, MD
2005  John C. Van Gilder, MD
2004  John A. Kusske, MD
2003  Troy M. Tippett, MD, FACS
2002  John A. Jane Sr., MD, PhD
2001  Donald H. Stewart Jr., MD
2001  Frank P. Smith, MD
2000  George Ablin, MD
2000  Robert H. Wilkins, MD
1999  W. Ben Blackett, MD, FACS, JD
1998  Mark J. Kubala, MD
1997  Ernest W. Mack, MD
1996  Robert E. Florin, MD
1995  Charles Edwin Bracket, MD
1994  William A. Buchheit, MD
1993  Roy W. Black, Codman & Shurtleff, Vice President

Humanitarian Award

At the recommendation of President Robert Ojemann, MD, the Board of Directors established the Humanitarian Award in January 1987. The award recognizes AANS members for activities outside the art and science of neurosurgery, which bring great benefit to mankind. The Board of Directors selects the recipient on the recommendation of the Awards Committee. The Humanitarian Award distinguishes those members who have given their time or talents selflessly to charitable or public activity and whose actions have brought honor to the specialty.

Timir Banerjee, MD, FACS

A native of India and third-generation physician, Timir Banerjee, MD, FACS, received his medical degree in 1967 from the University of Calcutta. He performed internships in Calcutta and New Delhi, and in the U.S. at St. Joseph Infirmary in Louisville, KY. He completed one year of a general surgery residency at St. Joseph Infirmary before undertaking his neurosurgery residency at Ohio State University. He received his board certification from the American Board of Neurological Surgery in 1976.

Dr. Banerjee spent four years on the neurosurgery faculty at the University of North Carolina at Chapel Hill and a year at the University of Wisconsin-Madison before establishing a longtime practice in Louisville. He also served in the U.S. Naval Reserve as a commander from 1982-1985. Although Dr. Banerjee officially retired from active practice in 1997, he continues to serve as a clinical professor of neurosurgery at the University of Louisville School of Medicine.

Every year for over two decades, Dr. Banerjee has volunteered with the Medical Benevolence Foundation and the Foundation for International Education in Neurological Surgery (FIENS) in locations including India, Nepal, Brazil, Peru, Honduras, Zimbabwe and Ethiopia. Dr. Banerjee established the Lily Banerjee Trust in honor of his mother. Through this trust, he has generously supported philanthropic efforts in the areas of medicine and social programs throughout the developing world and the U.S. Among his contributions: brain surgery drills in Peru, stereotactic equipment in Brazil, prepaid care for leprosy and cancer patients in India, an MRI and Neuro-ICU in Nepal, and crop research in Zimbabwe. This trust has also endowed the named Hunt-Wilson Lecture at AANS annual meetings.

In 1997, responding to a need in the Louisville community, Dr. Banerjee founded the Society for the Prevention of Aggressiveness and Violence Among Adolescents (SPAVA), partnering with the University and Archdiocese of Louisville. In 2005, Dr. Banerjee walked across America in 87 days to bring awareness to SPAVA and teach children about perseverance and determination.
Past Recipients of the Humanitarian Award

2009 Armondo J. Basso, MD, PhD
2008 Robert J. Dempsey, MD
2007 Benjamin C. Warf, MD
2006 Gene E. Bolles, MD
2005 Tetsuo Tatsumi, MD, FACS
2004 Charles L. Branch Sr., MD
2003 No Award
2002 Edgar M. Housepian, MD
2001 Gary D. Vander Ark, MD
2000 Merwyn Bagan, MD, MPH
1999 Thomas B. Flynn, MD
1998 Lee Finney, MD
1997 Robert J. White, MD
1996 No Award
1995 Melvin L. Cheatham, MD
1994 E. Fletcher Eyster, MD
1993 Manual Velasco-Suarez, MD
1992 William H. Mosberg Jr., MD
1991 George B. Udvarhelyi, MD
1990 A. Roy Tyrer Jr., MD
1989 Hugo V. Rizzoli, MD
1988 Gaston Acosta-Rua, MD
1987 Courtland H. Davis Jr., MD

Louise Eisenhardt Lecture

Mary Sue Coleman, PhD
Mary Sue Coleman, PhD, has led the University of Michigan since being appointed its 13th president in August 2002. As U-M president, she has unveiled several major initiatives that will have an impact on future generations of students, the intellectual life of the campus, and society at large. Under her leadership, the University launched "The Michigan Difference," a campaign to raise $2.5 billion for the future of the institution. At its conclusion in December 2008, the campaign finale stood at $3,200,733,103 – the highest ever by a public university.

She earned her undergraduate degree in chemistry from Grinnell College and her doctorate in biochemistry from the University of North Carolina. She holds honorary doctorates from Grinnell College, Luther College, the University of Kentucky, Albion College, Dartmouth College, Shanghai Jiao Tong University, Northeastern University, the University of Toledo, and the University of Notre Dame.

As a biochemist, Dr. Coleman built a distinguished career through her research on the immune system and malignancies. At the University, she holds appointments of professor of biological chemistry in the Medical School and professor of chemistry in the College of Literature, Science, and the Arts.

President Coleman is regarded as a national spokesperson on the educational value of diverse perspectives in the classroom. Her extensive leadership positions in higher education include having served on the Association of American Universities Executive Committee, the Internet2 Board of Directors, the National Collegiate Athletic Association Board of Directors, and the Knight Commission on Intercollegiate Athletics.

AANS International Lifetime Recognition Award

Jose G. Martin-Rodriguez, MD

Based in Madrid, Spain, Jose G. Martin-Rodriguez, MD, serves on the advisory boards of the Pan Arab Journal of Neurosurgery and Neurosurgical Reviews. He graduated from the Medical School of the Complutensia University of Madrid and earned his Specialist in Neurosurgery degree in 1969. In London, he completed an internship in general surgery under Sir Ralph Marnham, the Surgeon to the Queen Mother. In Edinburgh, he studied under Prof. F. John Gillingham, one of the world leaders in vascular and functional neurosurgery. He continued his education under many renowned surgeons, serving as Senior House Officer to Gillingham and later moving to the University of Newcastle upon Tyne, a well recognized Center for neurological sciences in the North of England. Having completed neurosurgical training with a title of Specialist in Neurosurgery from both the United Kingdom and Universidad Complutense Madrid, he moved in 1971 to Hospital La Paz, Madrid. In 1978 he was named department chair at the Hospital Ramón y Cajal, Madrid.

Among the publications to which he contributed is the 1982 edition of Youmans Neurological Surgery. With Prof. Jose Manuel R. Delgado, he wrote numerous papers on deep brain stimulation following their first implant of a self-developed brain stimulator in 1972. He worked on the mechanical improvement of a microelectrode carrier developed for Prof. Lars Leksell's frame in Stockholm, and was among the first to witness Prof. Leksell performing an operation using the Gamma Knife to treat a Parkinson's disease tremor.

Dr. Martin-Rodriguez has been involved in many international neurosurgical organizations including the Foundation of the European Association of Neurosurgical Societies and the Spanish-Portuguese Society of Neurosurgery. He is most recognized for his decades of service to the World Federation of Neurosurgical Societies (WFNS) and his humanitarian efforts to advance neurosurgical education in developing countries. Dr. Martin-Rodriguez served as secretary of the WFNS from 2001-2005. In cooperation with many international leaders active in the WFNS, he strove to elevate access to neurosurgical care in underserved areas in Africa, Asia, Latin America, the Middle East, and countries formerly in the USSR. His contributions helped facilitate personal associations among neurosurgeons throughout the world. Additional information on Dr. Martin-Rodriguez is posted at www.AANS.org under the international section.

International Visiting Surgeon Fellowship

Yu-Guang Guan, MD

A neurosurgical resident at the Sanbo Brain Institute in Beijing, China, Dr. Guan will be participating in the Yale Epilepsy Surgery Program, through his sponsor, Dennis D. Spencer, MD. Presently
Muhamad Thohar Arifin, MD, PhD

Muhamad Thohar Arifin, MD, PhD is with the Epilepsy Treatment Program at Diponegoro University in Semarang, Indonesia. Dr. Arifin planned an observational study with Gary W. Mathern, MD, the neurosurgical director of the Pediatric Epilepsy Program at the University of California, Los Angeles. His goal is to improve pre-surgical evaluation and surgical approach for epilepsy surgery.

AANS/CSNS SOCIOECONOMIC AWARD

Byron Cone Pevehouse Award

Nicholas Marko, MD

Nicholas Marko, MD, is a neurosurgery senior resident at the Cleveland Clinic. He received his medical degree from the George Washington University School of Medicine in 2005.

Dr. Marko’s research involves the clinical, basic science, and translational domains of neurosurgical oncology. His clinical research focuses on the management of both primary CNS malignancies and brain metastases, as well as on the surgical management of neuroendocrine disorders. This includes assessment of clinical outcomes and elucidation of evidence designed to inform decisions regarding the comparative effectiveness of alternate patient management strategies. His research extends into the public policy arena and includes a focus on socioeconomic dimensions of the delivery of neurosurgical care. Additional clinical interests include neuroendocrine surgery, surgical management of pain, and management of the critically ill neurosurgical patient.

The foundation of Dr. Marko’s laboratory research on the genomics of malignant brain tumors was developed during a Howard Hughes Medical Institute fellowship at the Institute for Genomic Research from 2003-2004. His research has grown to encompass a spectrum ranging from basic investigations of tumor genomics and proteomics to translational research regarding integration of biological and clinical data for the purposes of class discovery. He also has a closely-related interest in computational biology and analysis of large-volume molecular data sets, which he approaches from a clinical perspective with the goal of identifying novel genotypic-phenotypic associations in malignant brain tumors that can be incorporated into clinical trial design.

Robert Florin Award

John K. Ratliff, MD

John K. Ratliff, MD, is associate professor of Neurosurgery and Orthopedic Spine Surgery at Thomas Jefferson University in Philadelphia. He received his medical degree from Tulane University School of Medicine. After finishing his residency in neurological surgery at Louisiana State University, Dr. Ratliff completed a Clinical Research Fellowship at the National Institutes of Health, National Institute of Neurological Disorders and Stroke. Following completion of his research fellowship in 2001, Dr. Ratliff continued his specialty training with a Spine Surgery Fellowship at New York University.

Dr. Ratliff serves on the AANS/CNS Coding and Reimbursement Committee, has served as AANS guest to the RUC for three years, and is Alternate Delegate to the AMA House of Delegates, representing the AANS. He serves on the AANS Public Relations Committee, the AANS/CNS Quality Improvement Workgroup, and the National Quality Foundation National Priorities Partnership Overuse Work Group. He is the Pennsylvania Delegate to the Council of State Neurosurgical Societies. Dr. Ratliff is a previous recipient of the ACS/AANS Brandeis University Health Policy Scholarship, and was a Health Policy Scholar in 2009-2010.

NEUROSURGERY RESEARCH AND EDUCATION FOUNDATION (NREF) AWARD AND FELLOWSHIP RECIPIENTS

The NREF Research Fellowships and Young Clinician Investigator Awards are made possible thanks to the generous support of AANS members, group practices, hospitals, corporate supporters and the public. The one and two-year grants truly make a difference to the scientists receiving them. Typically, the NREF funds nine to twelve grants in the area of biomaterials, brain tumors, cerebrovascular disease, endovascular neurosurgery, pain management, pediatrics, spine and trauma.

2008 Research Fellow

Betty Kim, MD

University of Toronto

Co-Sponsors: Warren Chan, PhD, James, T. Rutka, MD, PhD

Project title: Integrated Nano-Platform for High-Throughput Multiplexed Detection of Pathogenic Biomarkers in Cerebrospinal Fluid

In neurosurgery, cerebrospinal fluid (CSF) infections related to shunts or external ventricular devices continue to be a major cause of morbidity and mortality. The accuracy and predictive values of current detection systems are suboptimal, often requiring multiple confirmatory assays and complex time-consuming purification techniques.

www.AANS.org
By developing novel fluorescence-based biocompatible nanomaterials, we aim to design small portable optical detection platform that would enable rapid imaging and screening for markers of various pathological conditions. As a proof of principle study, we have shown that by integrating fluorescent semiconductor nanocrystals with polymeric biomaterials, we can engineer nanoscaled optical probes for sensitive detection and imaging of biomolecules. In addition, using a microfluidic platform, we have also demonstrated that our fluorescent nanocomposite hybrid system can be utilized to perform multiplexed high-throughput detection of pathogens with high degree of sensitivity ex vivo.

### 2008 Research Fellow

**Pawel Ochalski, MD**  
University of Pittsburgh  
Co-Sponsors: P. David Adelson, MD, David O. Okonkwo, MD, PhD

**Project title:** The Effects of Modulating GABA Receptor Activity on Neuronal Cellular Function and Behavioral Outcomes Following Controlled Cortical Impact in Rats

This laboratory is interested in elucidating the molecular mechanisms involved in traumatic brain injury. We are currently using a rodent CCI model to understand the effects of GABA receptor modulation following brain injury. Recently, we have identified flumazenil, an FDA-approved benzodiazepine antagonist, as a potential therapeutic agent that may help attenuate the cognitive deficits following traumatic brain injury. With the use of behavioral and gene expression analysis, we plan to further elucidate the functional and genetic mechanisms involved in GABA modulation with flumazenil treatment following TBI in rats.

### 2008 Research Fellow

**Rollin Hu, MD**  
Massachusetts General Hospital  
Sponsor: Ziv Williams, MD

**Project title:** Development of a Cerebral-Spinal Motor Neural Prosthesis

This study proposes to systematically explore the feasibility of developing a cerebral-spinal neural prosthesis for restoring volitional limb control in a paraplegic primate model. Primates will be trained to perform a motor directional task, and intended movements will be predicted using linear and non-linear models based on neuronal activity recorded from the motor subterritory of the subthalamic nucleus (STN). Based on predictions from these models, microstimulus pulses will be delivered to the ventral spinal cord to produce movement. A closed-loop training module will be used to examine shifts in neuronal ensemble activity as the primates learn to correlate intended and actual actuator output during visual feedback.

### 2008 Research Fellow

**Timothy Vogel, MD**  
University of Iowa  
Sponsor: Edwin Stone, MD, PhD

**Project title:** Ependymal Ciliary Signaling in Hydrocephalus

Hydrocephalus in its different forms represents a significant public health concern and little is known regarding its various molecular etiologies. Ependymal cells possess cilia at their apical surfaces and disorders of cilia, or ciliopathies, such as Bardet-Biedl syndrome (BBS), have been implicated in the pathogenesis of hydrocephalus. Using a BBS mouse model of congenital hydrocephalus, we will employ molecular genetic approaches to elucidate the role of ependymal cilia in the development of hydrocephalus. Discovery of receptors at the surface of cilia will reveal important targets for future therapies.

### 2008 Research Fellow

**Jonathan P. Miller, MD**  
Case Western Reserve University  
Sponsor: Warren Selman, MD

**Project title:** Electrophysiological Alterations Following Minimal Traumatic Brain Injury

The goal of this project is to develop a better understanding of the electrophysiological changes that occur after mild traumatic brain injury (mTBI). We plan to use a closed head injury model in rats to test the hypothesis that the functional deficits after mTBI: (1) are associated with characteristic electrophysiological changes in specific areas of the brain; (2) may be identified using noninvasive methods such as EEG; and (3) may be reversed to some degree by means of high-frequency field stimulation using a stereotactically implanted electrode. This information should assist in the design of novel strategies for diagnosis and treatment.

### 2009 Research Fellow

**Michael Sughrue, MD**  
University of California  
Sponsor: Andrew T. Parsa, MD

**Project title:** The Role of Complement Activation in Glioma Proliferation
Recent evidence has shown that activation of the complement cascade facilitates proliferation of endogenous stem cell populations. Complement activation, secondary to tissue injury and necrosis, ultimately results in release of the anaphylatoxins C3a. These proteins in turn bind to specific receptors on local stem cells, causing the activation of mitogenic signals. In particular, glioblastoma multiforme (GBM) stands out as a tumor with large areas of necrosis and local stem cells that are capable of reconstituting the tumor. In this study, we provide in vitro and in vivo evidence that complement activation and release of C3a from necrotic areas of tumor can increase proliferation of glioma cells, providing a continuous pro-proliferative stimulus, as well as a potential mechanism for resistance to cytotoxic therapies.

2009 Research Fellow
NREF/Codman Research Fellow

Shahid Nimjee, MD
Duke University
Sponsor: Bruce Sullenger, PhD
Project title: Platelet Inhibition Using RNA Aptamer Technology

Platelet Inhibition Using RNA Aptamer Technology

Thrombosis is a leading cause of morbidity and mortality. Platelets have been targeted by a variety of therapeutic agents. Current inhibitors either inadequately inhibit platelet function or have significant side effects. Thus, a need exists for safer, effective agents. Glycoprotein Ib-IX-V receptor binds to von Willebrand Factor, which is pivotal for platelet aggregation. This study proposes to exploit the properties of RNA biochemistry to optimize an RNA aptamer that inhibits VWF. We will optimize an antidote-oligonucleotide that reverses the aptamer. Finally, we will test the aptamer-antidote pair in a canine in vivo model and in a rodent stroke model to show clinical efficacy and relevance.

2009 Research Fellow
NREF/Medtronic Research Fellow

Joel Bauman, MD
University of Rochester
Sponsor: Beth Winkelstein, PhD
Project title: Motion Preservation and Dynamic Stabilization in Post-Surgical Cervical Spine: Facet Joint Pressures and Kinematics in a Human Cadaveric Model

Cervical spondylosis is a common neurosurgical disease producing radiculopathy and/or myelopathy. Treatments include discectomy and laminectomy, often with fusion. Although total disc arthroplasty (TDA) is approved as a motion preserving alternative to fusion, its effects on the facet joints remain poorly characterized. Furthermore, while the destabilizing effects of laminectomy have been studied, the specific stresses on facet loading have not been quantified. The biomechanics of combined TDA with laminectomy are also unknown. A cadaveric experimental approach is proposed to investigate cervical facet pressures and kinematics in the intact, post-TDA, and post-laminectomy cases. We hypothesize that surgical manipulations of the cervical spine may affect facet pressures without significantly altering kinematics at the index level. As such, while laminectomy will not increase segmental motion, it will increase facet pressures in flexion. Similarly, TDA will generally preserve motion but will likely increase facet pressures in extension. Combined TDA with laminectomy will result in significant increases in segmental motion, which will also alter facet pressures in certain modes of loading, depending upon the instantaneous axis of rotation of the implant.

2009 Research Fellow
NREF/Spine and Peripheral Nerves Section Research Fellow

Raqeeb Haque, MD
Columbia-Presbyterian Medical Center
Sponsor: John H. Martin, PhD
Project title: A Novel Approach for Convection Enhanced Delivery of Nerve Growth Factors in a Peripheral Nerve Bridge Model to Bypass Spinal Cord Injury

Spinal cord injury (SCI) is a devastating disease that affects millions of people worldwide. We have previously described a novel approach in the rat to bypass spinal cord injury using a spinal nerve bridge. We propose that convection enhanced drug delivery (CEDD) of nerve growth factors directly into the spinal cord in our nerve bridge model might result in more robust connections between the nerve bridge and lumbar motor neuron pools. We will demonstrate the feasibility of CEDD in the spinal cord with our novel microcannula design. Furthermore, we hope to determine the effect of convection enhanced delivery of neurotrophic factors on nerve bridge axonal outgrowth. Outcomes will be assessed using immunocytochemistry and electrophysiology in rat and cat models.

2009 Research Fellow
NREF/Cerebrovascular Section Research Fellow

Michael T. Koltz, MD
University of Maryland
Sponsor: J. Marc Simard, MD, PhD
Project title: SUR1-Regulated NC(Ca-ATP) Channel – A Novel Therapeutic Target for Choroid Plexus and Germinal Matrix Hemorrhage

Choroid plexus hemorrhage (CPH) and
germinal matrix hemorrhage (GMH) are common complications of prematurity with devastating consequences (e.g. cerebral palsy, hydrocephalus, periventricular leukomalacia), yet the molecular pathophysiology is incompletely understood. The sponsor’s lab has discovered a channel, SUR1-regulated NC (Ca-ATP) that is transiently upregulated following ischemic or hypoxic injury, and is directly responsible for secondary hemorrhage within the CNS. A novel rodent model for perinatal ischemia/hypoxia has been developed to study the role of SUR1 in CPH/GMH. The proposed studies will be the first to elucidate a molecular mechanism for CPH/GMH which may be amenable to block using the potent SUR1 antagonist glibenclamide.

2009 Young Clinician Investigator Award

Michael Lim, MD
Johns Hopkins University
Sponsor: Drew Pardoll, PhD
Project title: Immune Characterization of STAT3’s Role in GBM

Glioblastoma multiforme (GBM) is a malignant brain tumor that enhances its malignant potential by evading the immune system. Signal transducer and activator of transcription 3 (STAT3) is a common signaling pathway that is overactivated in many cancer types, including GBM. STAT3 activation is thought to play a central role in suppressing the anti-tumor immune responses by regulating innate and adaptive immune responses. We propose to study STAT3’s effect in GBMs by selectively blocking STAT3 and performing a comprehensive evaluation of STAT3’s activation status in the infiltrating immune cells. We will then employ the use of unique STAT3 inhibitors in delivery vehicles to assess for improved tumor control.

Understanding the mechanisms by which STAT3 signaling affects the immune microenvironment of GBM will have critical relevance in the design of future GBM immunotherapies.

William P. Van Wagenen Fellowship

Andrew Grande, MD
Andrew Grande, MD, received his medical degree from the University of Minnesota in 2003. He completed his neurosurgical residency at the University of Cincinnati and Mayfield Clinic in 2009 and is currently completing a fellowship at UC in cerebrovascular/endovascular neurosurgery under the direction of Mario Zuccarello, MD, professor and interim chairman of the Department of Neurosurgery; Andrew Ringer, MD, associate professor and director of Endovascular Neurosurgery; and Todd Abruzzo, MD, assistant professor of Neuroradiology.

Dr. Grande’s research has been in the field of neuroregeneration for the treatment of stroke. During his residency he studied the regenerative potential of neural stem/progenitor cells in the adult neocortex under the mentorship of Masato Nakafuku, MD, PhD, Division of Developmental Biology, Cincinnati Children’s Hospital Medical Center. For this research, he received the AANS/CNS Section of Cerebrovascular Neurosurgery Research Grant and the Research Updates in Neuroscience for Neurosurgeons (RUNN) Research Award.

As the 2010 Van Wagenen Fellow, Dr. Grande will travel to Germany to study with Professor Magdalena Götz at Helmholtz Zentrum München (the German institute of stem cell research). This fellowship will enable Dr. Grande to investigate neuronal regeneration and integration in the injured adult mammalian neocortex.

The fellowship will begin in July 2010 and will be completed within one year. Following his fellowship Dr. Grande plans to pursue an academic career in vascular and endovascular neurosurgery. He will also continue his research and hopes that his experience in Germany will form the basis to begin assessing functional effects of neuronal regeneration following stroke.

AANS Medical Student Summer Research Fellowship

Teresa Wojtasiewicz
Teresa Wojtasiewicz is a second-year medical student at the Columbia University College of Physicians and Surgeons. She graduated from Barnard College in 2007, with a degree in chemistry. Since May 2009, she has been working in Columbia’s cerebrovascular lab, under the direction of E. Sander Connolly Jr., MD. She was awarded the AANS Medical Student Summer Research Fellowship to support this work.

Ms. Wojtasiewicz has a diverse research background. At Barnard, she worked on projects in synthetic inorganic chemistry, under the direction of Linda Doerrer, PhD. She investigated the phenomenon of cardiac memory in Michael Rosen’s lab for her senior thesis. After graduating from Barnard, she worked on projects in molecular screening in the lab of James E. Rothman, PhD at Columbia.

Best International Abstract Award

Pedro Lylyk, MD
Pedro Lylyk, MD, is associate professor of Neurosurgery at the University of Buenos Aires (UBA), Argentina. He is also associate director of Hemodynamics & General Angiology in the School of Medicine, UBA; professor of Vascular Medicine, Universidad del Salvador, Buenos Aires; professor of Endovascular Surgery, School of Medicine, Universidad de Ciencias Empresariales y Sociales, Buenos Aires; and professor
in the Radiology Department, School of Medicine, University of Santiago de Compostela, Spain. Since 1992, he has served as chair of the Endovascular Neurosurgery and Interventional Radiology Institute “ENERI” (Equipo de Neurocirugía Endovascular Radiología Intervencionista) with clinical responsibilities for the Neuroradiology Section in the Radiology Division, and the Neuroradiological Division in the Department of Clinical Neurosciences.

Dr. Lylyk received his medical degree from UBA Medical School in 1974, followed by his residency in neurosurgery at the Children Hospital “Ricardo Gutierrez”, Buenos Aires (1975-1979). In 1986, he pursued a fellowship at the University of Western Ontario and a fellowship and educational instructorship in neuroradiology in the Department of Interventional Neuroradiology, University of California, Los Angeles.

His academic activity is devoted to development of translational research in the field of image guided minimally invasive treatment of neurovascular diseases, tumors and back pain. He has authored 150 peer-reviewed publications, ten chapters on interventional neuroradiology and a book edited in 2009 related to stroke treatment. He has given over 500 invited national and international presentations.

Dr. Lylyk is cofounder and past president of the Latin-American Society of Diagnostic and Interventional Neuroradiology “SILAN” (Sociedad Iberolatinoamericana de Neuroradiología Diagnóstica e Intervencionista); cofounder and past president of the Argentine Association of Diagnostic and Therapeutic Neuroradiology, and current chairman of the Argentine Stroke Association.

WOMEN IN NEUROSURGERY (WINS) LOUISE EISENHARDT AWARD

Erin N. Kiehna, MD

Erin N. Kiehna, MD, is a PGY-4 neurosurgery resident at the University of Virginia. She graduated summa cum laude, Phi Beta Kappa from Vanderbilt University in 2002. During college she participated in the Pediatric Oncology Education program at St. Jude Children’s Research Hospital in Memphis, TN under the guidance of Thomas E. Merchant, DO, PhD, where she studied the tumor and treatment-related cognitive sequelae of conformal radiation for pediatric brain tumors. She continued to pursue this interest during medical school at the Yale School of Medicine where she graduated Alpha Omega Alpha in 2006.

Her clinical and research interests are in pediatric neurosurgery. In 2009, she was awarded the Crutchfield, Gage, and Thomson Resident Research Award at the Neurosurgery Society of the Virginias for her research on pediatric Cushing’s disease. She recently completed an elective at the Hospital for Sick Children in Toronto, Ontario as part of a pediatric scholarship. In 2010, she was awarded the Crutchfield, Gage, and Thomson Resident Research Award at the Neurosurgery Society of the Virginias for her research in managing intracranial pressures with the use of the intrathoracic pressure regulator.

YOUNG NEUROSURGEONS (YNS) MEDICAL STUDENT AWARD

Gina Deck

Gina Deck is a fourth year medical student at the University of Massachusetts Medical School in Worcester, MA. Her passion for neuroscience began during her studies as an undergraduate student at Emory University in Atlanta. While in medical school, Ms. Deck has been very active volunteering in a free medical clinic, being a leader of a medical school “learning community”, and participating in research on subdural hematoma with her mentor, Julie Pilitsis, MD, PhD. She aspires to become a neurologist with possible specialization in movement disorders or multiple sclerosis.

SECTION AWARD RECIPIENTS

AANS/CNS SECTION ON PAIN

William H. Sweet Award

Raymond F. Sekula Jr., MD

Raymond F. Sekula Jr., MD, is assistant professor, co-director of the Center for Cranial Nerve Disorders, and director of the Chiari Clinic at the Allegheny Neuroscience Institute/Drexel University College of Medicine in Pittsburgh, Pa.

A graduate of the University of Virginia and the Georgetown University School of Medicine, Dr. Sekula completed a residency in neurological surgery and fellowship with Peter J. Jannetta, MD, DSc, in microvascular surgery at the Allegheny Neuroscience Institute.

Dr. Sekula’s clinical interests include cranial nerve disorders (such as trigeminal neuralgia and hemifacial spasm), Chiari malformation, and other brain disorders. His work has been published in peer-reviewed journals on a variety of topics including trigeminal neuralgia, hemifacial spasm, Chiari malformation, cerebral aneurysms, tumors of the brain and spinal cord, traumatic brain and spinal cord injury, stereotactic radiosurgery, and adult neural stem cells. His research concerns the utility of adult neural stem cells in neurodegenerative and traumatic brain and spinal cord diseases and injuries and is funded through the National Institutes of Health.
Giancarlo Barolat, MD

Giancarlo Barolat, MD, received his medical degree in 1974 from the University of Torino, Italy. He then undertook a residency in neurosurgery at the University of Torino, followed by a fellowship in Functional Neurosurgery and Neurostimulation at the Mount Sinai Medical Center in Miami. Following completion of the fellowship, Dr. Barolat undertook a second residency in Neurosurgery at the Medical College of Wisconsin in Milwaukee. He is certified by both the American and Italian boards of neurosurgery.

Dr. Barolat has been practicing in Denver since June 2005, where he is affiliated with the Presbyterian St. Luke’s Medical Center. Dr. Barolat practiced at Thomas Jefferson University Hospital in Philadelphia from 1985 to 2004. He was professor of Neurosurgery, director of Neurosurgical Services, and director of the Division of Functional Neurosurgery at that institution until December 2004.

Dr. Barolat is past president of the International Neuromodulation Society. He is on the Board of the American Neuromodulation Society and on the Editorial Board of the Journal of Neuromodulation. He is currently director-at-large of the International Neuromodulation Society.

His practice has encompassed cranial and spinal surgery, as well as functional neurosurgery. In the span of 32 years, Dr. Barolat has performed over 7,000 neurostimulation procedures. His experience encompasses nearly every neurostimulation application that has ever appeared on the market.

Dr. Barolat has authored more than 70 medical articles and book chapters and lectured extensively, nationally and internationally.

Kenneth Shulman Award

Symeon Missios, MD

Symeon Missios, MD, a native of Greece, is currently the chief neurosurgical resident at Dartmouth-Hitchcock Medical Center in Lebanon, NH.

Dr. Missios immigrated to the U.S. in 1995, where he completed his high school education. He attended Duquesne University in Pittsburgh, and graduated summa cum laude with a BS in Biology and minor in Biochemistry. He continued his education at Dartmouth Medical School where he graduated in 2004 with highest honors and was the recipient of the Dean’s Medal for highest academic achievement.

Christopher G. Janson, MD

Christopher Janson, MD, is a fifth-year neurosurgery resident at the University of Minnesota. He received his undergraduate degree from Stanford University and his medical degree from Yale University. He is a past recipient of a Cambridge University, Trinity College Exchange Studentship, American Heart Association Predoctoral Research Fellowship, and an American Academy of Neurology Palatucci Advocacy Leadership Forum Award.

Dr. Janson served on the editorial board of the Yale Journal of Biology and Medicine, and currently serves on the editorial board of the journal Stem Cells and Development. His research interests are primarily in the area of human gene therapy, including the molecular genetics of Alzheimer’s disease and other neurodegenerative disorders.

Jeffrey Golden, MD

Jeffrey A. Golden, MD, is the pathologist-in-chief and chair of Pathology and Laboratory Medicine at the Children’s Hospital of Philadelphia. He is professor of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, and he holds the Evelyn Willing Bromley Endowed Chair of Pediatric Pathology.

Dr. Golden received his medical degree from the University of Pennsylvania School of Medicine. He pursued his internship at the University of California, Los Angeles, followed by a residency in anatomic pathology and fellowship in neuropathology at the Massachusetts General Hospital.

Dr. Golden’s laboratory uses in vitro and in vivo models to understand the molecular and cellular basis of developmental disorders affecting the central nervous system, particularly focusing on the role of cell migration and cell differentiation in the pathogenesis of cognitive disorders, epilepsy, brain malformations, and autism spectrum disorder. He has published numerous scientific papers and monographs on these topics as well as other aspects of pediatric neuropathology, including brain tumors, trauma, epilepsy, and congenital and acquired disorders of interest to pediatric neurosurgeons. He has collaborated extensively with pediatric neurosurgeons, neurologists, child developmental specialists and basic scientists to advance the understanding of disorders affecting the nervous system of pediatric patients.
AANS/CNS SECTION ON NEUROTRAUMA AND CRITICAL CARE

Synthes Resident Spinal Cord Injury Award

Gregory Hawryluk, MD
A native of Alberta, Canada, Gregory Hawryluk, MD, was a Rutherford Scholar and graduated from medical school at the University of Alberta in 2003. He graduated with honors and was recipient of several awards including the Medical Students’ Association Involvement Award. He is currently a senior neurosurgery resident and doctoral candidate at the University of Toronto.

Dr. Hawryluk has extensive research experience beginning with his work in the molecular genetics laboratory of Ross Hodgetts, PhD, exploring the regulation of gene cascades during Drosophila melanogaster development. He subsequently completed a combined clinical and research elective in brain trauma with M. Ross Bullock, MD, PhD, in 2005. He is currently working towards his doctorate under the supervision of Michael G. Fehlings, MD, PhD.

Dr. Hawryluk has authored many publications and won numerous awards for his research. He has contributed to the Brain Trauma Foundation’s guidelines over the past two years and recently served as the Canadian Neurosurgery Resident Representative to the Canadian Neurological Sciences Federation.

Synthes Resident Craniofacial Award

Jon T. Willie, MD, PhD
Jon T. Willie, MD, PhD, is currently a PGY5 resident, completing a clinical neurosurgery rotation with Daniel Rawluk, MD, at Beaumont Hospital in Dublin, Ireland. Dr. Willie completed his internship in general surgery and began residency in neurosurgery at Barnes Jewish Hospital and Washington University in St. Louis School of Medicine in 2006. He will return to complete chief residency with Ralph G. Dacey Jr., MD, at Washington University in July 2010. He earned his medical and PhD degrees from the University of Texas Southwestern Medical Center in Dallas in 2005.

As a graduate student in the laboratory of Masashi Yanagisawa, MD, PhD, he characterized the role of the novel neuropeptide orexin in the control of arousal. He helped define the critical role of orexin deficiency in narcolepsy-cataplexy using a mouse model, authoring several high-impact publications. In the laboratory of David L. Brody MD, PhD, he has investigated the function of the orexin system in arousal following brain injury using microdialysis and electrophysiology. He is the recipient of several awards for research and teaching medical students.

Dr. Willie will pursue fellowship training in epilepsy and functional/restorative neurosurgery beginning in July 2011 and remains committed to a career in academic neurosurgery.

Codman 2009 Recipient

David Cadotte, MD
David Cadotte, MD, graduated from medical school and entered the neurosurgical residency training program at the University of Toronto. He is currently a fourth-year resident and undertaking his PhD in translational research with a focus on functional MRI of the spinal cord. The aim is to achieve a better understanding of the neuroanatomical circuits involved in plasticity following spinal cord injury.

In addition, he has a keen interest in international surgery and is currently involved with a collaborative partnership between the University of Toronto and Addis Ababa University in order to improve neurosurgical care in Ethiopia.

AANS/CNS SECTION ON STEREOTACTIC AND FUNCTIONAL NEUROSURGERY

Philip L. Gildenberg Resident Award

Demitre Serletis, MD
Demitre Serletis, MD, is a PGY-4 neurosurgery resident at the University of Toronto, Ontario.

He received his undergraduate and medical degrees from the University of Calgary, Alberta.

Dr. Serletis is currently pursuing a collaborative doctorate through the Department of Physiology and the Institute of Biomaterials and Biomedical Engineering at the University of Toronto. His research interests lie in the realm of neuroengineering, focusing on the application of computational methods to investigate the mathematical complexity underlying neuronal “noise” and dynamical state transitions in the healthy and epileptic brain. In particular, he studies electrophysiological recordings from rodent and human tissues, and has also been extensively involved in the development of miniaturized neurochips for interfacing with the nervous system. His work is currently sponsored by a Research Fellowship from the NREF/American Academy of Neurological Surgery and by a Discovery Grant from the Natural Sciences and Engineering Research Council of Canada.

Upon completion of his research and neurosurgical residency, Dr. Serletis plans to pursue a fellowship in epilepsy and functional neurosurgery to prepare for a career as a surgeon-scientist, focusing on novel treatments for patients with epilepsy.
Integra Foundation Award

Isaac Yang, MD

Isaac Yang, MD, is a chief resident in the Department of Neurological Surgery at the University of California, San Francisco (UCSF). Dr. Yang’s interest in neurobiology started as an undergraduate at the University of California, Berkeley, where he graduated with high honors and Phi Beta Kappa.

As a medical student at the University of California, Los Angeles School of Medicine, Dr. Yang was mentored in the brain tumor lab of Linda Liu, MD, PhD. He was awarded the Dean’s Outstanding Thesis Award and Lasky Memorial Research Award.

As a neurosurgery resident at UCSF, Dr. Yang has worked in the research lab of Andrew Parsa, MD, PhD. His research honors include a National Research Service Award grant, the Congress of Neurological Surgeons Dandy Clinical Research Fellowship, the AANS Leksell Radiosurgery Award, and the UCSF Translational Scientist Training Research Grant.

Dr. Yang is dedicated to improving the care and treatment of patients with brain tumors. After residency, he will pursue a career in academic neurosurgery with a focus on brain tumor research and skull base tumors. He hopes to contribute to the field of neurosurgery and neuro-oncology in the future.

Stryker Neuro-Oncology Award

Nicholas F. Marko, MD

Nicholas Marko, MD, is a neurosurgery senior resident at the Cleveland Clinic. He received his medical degree from the George Washington University School of Medicine in 2005.

Dr. Marko’s research involves the clinical, basic science, and translational domains of neurosurgical oncology. His clinical research focuses on the management of both primary CNS malignancies and brain metastases, as well as on the surgical management of neuroendocrine disorders. This includes assessment of clinical outcomes and elucidation of evidence designed to inform decisions regarding the comparative effectiveness of alternate patient management strategies. His research extends into the public policy arena and includes a focus on socioeconomic dimensions of the delivery of neurosurgical care. Additional clinical interests include neuroendocrine surgery, surgical management of pain, and management of the critically ill neurosurgical patient.

The foundation of Dr. Marko’s laboratory research on the genomics of malignant brain tumors was developed during a Howard Hughes Medical Institute fellowship at the Institute for Genomic Research from 2003-2004. His research has grown to encompass a spectrum ranging from basic investigations of tumor genomics and proteomics to translational research regarding integration of biological and clinical data for the purposes of class discovery. He also has a closely-related interest in computational biology and discovery. He also has a closely-related interest in computational biology and analysis of large-volume molecular data sets, which he approaches from a clinical perspective with the goal of identifying novel genotypic-phenotypic associations in malignant brain tumors that can be incorporated into clinical trial design.

Leksell Radiosurgery Award

Raqeeb Haque, MD

Raqeeb Haque, MD, is currently a fifth year neurosurgical resident in the Department of Neurological Surgery at Columbia University Medical Center. Dr. Haque attended Harvard University, where he majored in biology and received the prestigious Harvard College Scholarship. At Johns Hopkins Medical School, he began to develop an early interest in neurosurgery and neurological based disorders. To help develop his basic science interest in neurosurgery, he was the recipient of the Howard Hughes Medical Institute Research Fellowship at the National Cancer Institute.

Preuss Award

Viviane S. Tabar, MD

Viviane S. Tabar, MD, is an associate professor in the department of Neurosurgery at the Weill Cornell Medical College, and a member of the Brain Tumor Center at Memorial Sloan Kettering Cancer Center. She received her medical degree from the American University of Beirut, followed by her residency at the University of Massachusetts. Dr. Tabar received her board certification from the American Board of Neurological Surgery in 2006. Her clinical activities encompass the spectrum of brain and skull base tumors.

Dr. Tabar undertook scientific fellowship training at the National Institutes of Health (National Institute of Neurological Disorders and Stroke). She has established a successful research program in stem cell research, attracting major RO1-type funding from the NIH, New York State, and multiple foundations. The laboratory aims at developing novel cell replacement strategies for the treatment of central nervous system disorders using human pluripotent stem cells (embryonic stem cells and induced pluripotent stem cells). A smaller but growing effort is directed at developing ex-vivo primary cells). A smaller but growing effort is directed at developing ex-vivo primary cells). A smaller but growing effort is directed at developing ex-vivo primary cell replacement strategies for the treatment of central nervous system disorders using human pluripotent stem cells (embryonic stem cells and induced pluripotent stem cells). A smaller but growing effort is directed at developing ex-vivo primary cells). A smaller but growing effort is directed at developing ex-vivo primary cell replacement strategies for the treatment of central nervous system disorders using human pluripotent stem cells (embryonic stem cells and induced pluripotent stem cells). A smaller but growing effort is directed at developing ex-vivo primary cells). A smaller but growing effort is directed at developing ex-vivo primary cell replacement strategies for the treatment of central nervous system disorders using human pluripotent stem cells (embryonic stem cells and induced pluripotent stem cells).

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Dr. Haque began his neurosurgical residency training at Columbia in 2005. During his residency, his research interests have included spinal cord injury, brain tumors, and vascular malformations. Most recently, he was recipient of a 2009 Neurosurgery Research and Education Foundation grant and the Mayfield Clinical Science Research Award for his work on a novel nerve bridge for the treatment of spinal cord injury.

He currently conducting some of his research under the guidance of Dr. E. Sander Connolly and Dr. John Martin. He has also continued his research interest of brain tumors that he developed during his HHMI year with Dr. Michael Sisti.

Dr. Nader Sanai, MD, received his undergraduate degree from the University of California, San Diego summa cum laude in 1998, completing an honors thesis in neurosurgery with Lawrence F. Marshall, MD. In 2001, as a University of California, San Francisco medical student, he was awarded an HHMI Research Training Fellowship to join the laboratory of Arturo Alvarez-Buylla, PhD, studying adult neural stem cells in the human brain. His initial work with Dr. Alvarez-Buylla was reported in journals such as Nature and The New England Journal of Medicine. Dr. Sanai remains an active member of the Alvarez-Buylla laboratory, investigating the development of the human subventricular zone in conjunction with David H. Rowitch, MD, PhD.

Nader Sanai, MD

Dr. Sanai started his neurosurgical training at UCSF in 2004. Under the mentorship of Mitchel S. Berger, MD, FACS, Dr. Sanai has conducted studies focusing on surgical neuro-oncology, intraoperative language mapping, and the biology of gliomagenesis. Within surgical neuro-oncology, his area of clinical specialization has extended into lesions of the skull-base, guided by UCSF skull-base surgeons, Michael W. McDermott, MD and Michael T. Lawton, MD.

In 2009, Dr. Sanai entered a one-year Fellowship in Skull-Base Surgery with Robert F. Spetzler, MD, at the Barrow Neurological Institute. Beginning in 2010, he anticipates a career in academic neurosurgery, both as a surgical neuro-oncologist and a neural stem cell scientist. To date, Dr. Sanai has authored over 30 peer-reviewed and 30 invited publications, as well as delivered 25 academic lectures.

Springer Journal of Neuro-Oncology Award

Andrew T. Parsa, MD, PhD

Andrew T. Parsa, MD, PhD, completed his undergraduate studies at Yale University, with a degree in molecular biophysics and biochemistry. At Yale, he developed an interest in neurosurgical oncology after completing a student internship with Michael Apuzzo, MD. In 1988, Dr. Parsa enrolled in the MD, PhD program at Downstate Medical Center in Brooklyn, N.Y. During this time, Dr. Parsa collaborated with John Miller, MD, and other members of the neurosurgery department at Downstate to initiate a clinical trial evaluating an adjuvant linked vaccine for recurrent glioma.

In 1996, Dr. Parsa matriculated into the neurosurgical training program at Columbia University, Medical Center under Bennett Stein, MD, Donald Quest, MD, and later Robert Solomon, MD. While at Columbia, Dr. Parsa continued to develop his research interests in the laboratory of Jeffrey N. Bruce, MD, FACS, working to refine mechanisms of anti-glioma immunity.

In 2002, Dr. Parsa joined the faculty at the University of California, San Francisco, under the leadership of Mitchel S. Berger, MD, FACS. He is currently an associate professor appointed to the Khatib Endowed Chair of Skull Base Tumor Surgery. Dr. Parsa is also co-director of the skull base tumor program at UCSF and project leader in the UCSF Brain Tumor Specialized Program of Research Excellence funded through the National Cancer Institute. He has published numerous peer-reviewed papers, reviews, chapters and commentaries in journals including Nature Medicine, Oncogene and Cancer Research.

American Brain Tumor Association Young Investigator Award

Markus Bredel, MD, PhD

Markus Bredel, MD, PhD, has served as director of the Northwestern Brain Tumor Institute Research Program and assistant professor in the Department of Neurological Surgery at Northwestern University in Chicago.

Dr. Bredel received his medical degree with honors from the University of Vienna and his PhD, summa cum laude from the Free University of Berlin in 2001. After training in neurosurgery from 2001-2003, he was a postdoctoral fellow in the Division of Oncology at Stanford University from 2003-2005. From 2005-2006, he was a visiting assistant professor in the Department of Neurosurgery at Stanford.

Dr. Bredel’s research is dedicated to bringing molecular advances in the pathogenesis and therapy of brain tumors to clinical application. He is the recipient of numerous awards for his research, including a Merit Award of the American Society of Clinical Oncology; the German Pfizer Research Award for Medicine; the Preuss Research Award of the AANS/CNS Section on Tumors; and a Rhone-Poulenc-Rorer Young Investigator Award of the American Association for Cancer Research.

Dr. Bredel serves on the Editorial Board of The Lancet Oncology and is an associate editor of BMC Cancer. He has served as
chair of the Central Nervous System Tumor Track of the Scientific Program Committee of the American Society of Clinical Oncology.

Synthes Skull Base Award

Jason P. Sheehan, MD, PhD

Jason P. Sheehan, MD, PhD, is associate professor of neurological surgery, radiation oncology, and neuroscience at the University of Virginia. He received his medical degree and doctorate in biophysics from the University of Virginia. He completed his residency training at the University of Virginia. In addition, Dr. Sheehan spent one year training at Auckland Medical Center in New Zealand and another year at the University of Pittsburgh Medical Center. His clinical and research interests are in minimally invasive intracranial and spinal neurosurgery.

Ronald L. Bittner Award

Michael E. Sughrue, MD

Michael E. Sughrue, MD, is currently a PGY-5 neurosurgery resident at the University of California, San Francisco. He received his undergraduate degree from the University of Oklahoma. He received his medical degree, Alpha Omega Alpha, from the Columbia University College of Physicians and Surgeons in 2005.

He is the recipient of several research awards, including most recently, the AANS Synthes Skull Base Award (2008), NREF/Biomet Microfixation Research Fellowship (2009), and the Ruth L. Kirschstein National Research Service Award Research Training Grant from NIH-NINDS (2009). He is author or co-author of 80 peer-reviewed articles, 12 book chapters, and 30 abstracts.

Upon completing his residency, Dr. Sughrue plans to pursue an academic neurosurgery career specializing in brain tumors.

Farber Award

Roger Stupp, MD

Roger Stupp, MD, is head of the Department of Oncology of the Riveria/Chablais region at the hospitals of Vevey and Monthey, Switzerland, and he serves as attending physician in the Department of Neurosurgery at the University of Lausanne Medical Center (CHUV), where he leads the multidisciplinary brain tumor clinic.

Dr. Stupp received his medical degree from Zurich University Medical School and subsequently trained in internal medicine at the Langenthal/Bern County Hospital and the University Hospital of Zurich. He then specialized in hematology and oncology and spent three years as a fellow in medicine, hematology/oncology at the University of Chicago Hospitals and Cancer Center.

Dr. Stupp’s clinical interests include the multimodality management of primary and secondary brain tumors, head, neck, and lung cancers, new drug development, and the association of chemotherapy and radiation therapy. He is very involved with bringing new antiangiogenic and biological treatments to the clinic. Dr. Stupp maintains close collaborations with the Laboratory of Tumor Biology and Genetics at the CHUV, Laboratory of Tumor Angiogenesis and Melanoma Research, and the Swiss Institute of Experimental Cancer Research.

Dr. Stupp has been the lead investigator for establishing temozolomide chemotherapy in conjunction with radiotherapy in newly diagnosed glioblastoma, and determining the predictive value of MGMT gene promoter methylation. Recent work includes the association of the integrin inhibitor cilengitide in addition to chemoradiotherapy, currently under investigation in a randomized phase III trial. He co-chairs a randomized clinical trial by the Swiss Group for Clinical Cancer Research, investigating chemotherapy and concomitant radiotherapy in lung cancer brain metastases.

AANS SECTION ON HISTORY

Vesalius Award

Sergiy Kushchayev, MD, PhD

Sergiy Kushchayev, MD, PhD, a Ukrainian neurosurgeon, received his medical degree from Bogomolets National Medical Institute, Kiev, in 1997 and his PhD in 2003. He has been a research fellow at the Barrow Neurological Institute, St. Joseph’s Hospital and Medical Center in Phoenix, AZ since 2008. His fellowship focuses on immunology of malignant brain tumors and investigation of the scaffolds in spinal cord injury. Prior to undertaking this fellowship, Dr. Kushchayev was working as a neurosurgeon and staff researcher at the State Institute of Neurosurgery Academy of Medical Sciences.

He is a 2009 Laureate of the Ukrainian State Prize in the field of Science and Technique. He is also the recipient of Stipendium of Cabinet of Ministry of Ukraine (2004) and an award from the Academy of Medical Sciences of Ukraine (2000). He is the author of two books and four patents.

He was appointed president and CEO of Cancer Care Ontario in April 2002. From 1991-2000, he was president and CEO of Toronto’s University Health Network. Prior to being appointed president and CEO of UHN, Dr. Hudson served as McCutcheon Chair and Surgeon in Chief at the Toronto Hospital from 1989-1991. He had a long and distinguished academic career at the University of Toronto; appointed chair of the Department of Neurosurgery in 1979, and named Professor Emeritus in 2003.

Dr. Hudson received his master’s and medical degree from the University of Cape Town. He pursued training in general surgery at the Royal College of Surgeons in Edinburgh, followed by training in neurosurgery at the Royal College of Surgeons, Canada. He attained board certification in 1968. In 1969, he was a McLaughlin Fellow in the Department of Human Anatomy at Oxford.

Dr. Hudson is the recipient of numerous awards. Recent awards include: Order of Canada (2000), Salute to the City Award, Toronto (2002), Queen’s Jubilee Medal (2003), and Honorary Doctor of Laws, University of Toronto (2009). He has published 155 papers and book chapters.

Dr. Hudson is the recipient of the Integra Foundation David G. Kline Lectureship.

Alan R. Hudson, OC


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AANS OPENING RECEPTION

Sunday, May 2
6:30–8:00 PM
Exhibit Halls A and B, Pennsylvania Convention Center

Be sure to make plans to attend the social event of the week, the Opening Reception! With the Opening Reception being held in the Exhibit Hall, you will be able to socialize with friends and colleagues, as well as meet with AANS exhibiting companies to learn more about products and services they offer.

You will be led on a journey back to the American Revolution era, feasting on popular food items of the time. Who knows, you may even run into Ben Franklin or Betsy Ross!

Don’t miss the opportunity to hear some of our own. NJQ “Neurosurgical Jazz Quintet” featuring Donald O. Quest, MD, James E. Rose, MD, Theodore H. Schwartz, MD, R. Michael Scott, MD and Phillip R. Weinstein, MD will again entertain us during the party.

One ticket to the Opening Reception is included with each medical attendee and spouse/guest registration.

Motor coaches will shuttle between the Pennsylvania Convention Center and the Crowne Plaza Philadelphia Downtown, Doubletree Hotel Philadelphia, Embassy Suites Philadelphia Center City, Four Seasons Hotel Philadelphia and Ritz Carlton between 6:15 – 8:15 PM. All other hotels are within walking distance of the Convention Center.

AANS INTERNATIONAL RECEPTION & AWARD PROGRAM

Monday, May 3
6:30–8:00 PM
Liberty Ballroom of the Philadelphia Marriott Downtown (Headquarters Hotel)

Join leaders from the AANS and neurosurgical organizations from around the globe as the AANS presents the International Lifetime Recognition Award to Jose G. Martin-Rodriguez, MD. This prestigious award honors Dr. Martin-Rodriguez for his lifetime of invaluable contributions to neurosurgery internationally, his home country of Spain and his work with the World Federation of Neurosurgical Societies. The AANS will also recognize other international awards and fellowship recipients.

There is no fee to attend; however a ticket is required which may be obtained at registration. The American Association of Neurological Surgeons welcomes all annual meeting registered attendees – especially our colleagues from outside the United States.

If you are an officer in a neurosurgical organization outside the United States, we will acknowledge you at the event. If you did not indicate your leadership position when you registered for the meeting, please alert staff in on-site registration by noon on Sunday so that the AANS can acknowledge you at the reception.

More information on award and fellowship recipients is posted on the AANS Web site at http://www.aans.org/international/.

NEUROSURGICAL TOP GUN COMPETITION

For the fifth consecutive year, the Young Neurosurgeons Committee will present a competition for residents and fellows, located in booth #925 in the exhibit hall. This three day event will include stations such as motion/tremor analysis, computer-simulated ventriculostomy and pedicle screw placement. Contestants will receive scores for their performance and the resident or fellow with the best score will receive the Neurosurgical Top Gun honor and prize.

AANS SECTION ON THE HISTORY OF NEUROLOGICAL SURGERY ANNUAL DINNER

Monday, May 3
6:00–9:30 PM
Pennsylvania Academy of the Fine Arts (PAFA)

Featuring the Setti S. Rengachary Memorial Lecture

Presenter: Richard R. Beeman, PhD
Professor and Chair, Department of History, University of Pennsylvania

Title: The Founding Fathers of 1787: Lessons in Political Leadership

6:00–7:00 PM Reception
7:00–8:15 PM Dinner
8:15–9:00 PM Setti S. Rengachary Lecture
9:00–9:30 PM Tour the Art Gallery

PAFA is within walking distance of the Pennsylvania Convention Center. Arrive early to peruse Portfolio, the gift shop that is located next to PAFA. Hours of operation have been extended to 7:00 PM the evening of Monday, May 3.

If you wish to purchase a ticket at $150 per person, you may do so at Registration until Monday, May 3 at 12:00 PM.
**NURSE & PHYSICIAN EXTENDERS’ PROGRAMS**

Watch for this icon throughout the Preliminary Program. It indicates sessions that were designed with you in mind.

**NEUROSCIENCE NURSE, NURSE PRACTITIONER AND PHYSICIAN ASSISTANT ACTIVITIES**

The Scientific Program Committee has organized a comprehensive selection of scientific topics that will be presented. All registered nurses, nurse practitioners, and physician assistants are encouraged to attend any of the Breakfast Seminars that are offered each morning, Monday through Wednesday; and the Practical Clinics on Saturday and Sunday.

Six practical clinics, sixteen breakfast seminars and two afternoon sessions are being offered, which are listed below, as well as the Mid-level Practitioner Luncheon:

**PRACTICAL CLINICS**

004 3-D Anatomy and Approaches to the Supratentorial Area and Anterior Skull Base

005 Spinal Stabilization, Fusion and Instrumentations: Biomechanics and Techniques

006 Decision Making and the Spine Patient for Nurses, APRNs and PAs

013 Peripheral Nerve Injuries, Entrapments and Tumors: Examination and Evaluation

020 Head and Spine Trauma: Current Treatments and Controversies with Hands-On Practical Session in Brain Monitoring and Techniques

028 Neurotrauma Critical Care Review and Update for the Practicing Neurosurgeon

**BREAKFAST SEMINARS**

103 Lumbar Spine Fusion

109 Controversies in the Management of Intracerebral Hematomas

113 Management of Spinal Axis Trauma

120 Management of Acute Spinal Cord Injury

202 Multidisciplinary Management of Cerebral AVMs

206 Surgical Treatment of Parkinson’s Disease

209 Management of Vasospasm

210 Management of Adult Scoliosis

213 Management of Asymptomatic Vascular Lesion

218 The Spectrum of Adjuvant Therapy for Brain Tumors

220 Pediatric Head Injury

302 Cerebral Neuromonitoring

306 Coil vs. Clip for Intracranial Aneurysms

310 Cervical Spondylotic Myelopathy

313 Integrating Mid-Level Practitioners into Your Practice

318 Evaluation of the Child with a CSF Shunt

**128 Mid-level Practitioner Luncheon**

Monday, May 3, 1:00–2:45 PM  
Room 113A, Pennsylvania Convention Center

*Sponsored by Codman, a Johnson & Johnson company and NuVasive, Inc.*

*Fee: $25*

**Skull Base Surgery: Quantums of Solace and Despair**

*Moderator: Twyila Lay, NP, MS*

*Speaker: Anil Nanda, MD, FACS*

This luncheon offers an exclusive opportunity for Mid-level Practitioners and Nurses to meet, debate, and discuss the uniqueness of their roles within the realm of neurological surgery as it relates to procedural techniques, interdisciplinary communication and barriers practice. The luncheon will feature an interactive session on Skull Base Surgery which will highlight pre-op, intra-op and post-op patient care as provided by the nurse and mid-level practitioner. In conclusion, potential complications and preventive measures will be explored.

**500 Advancements in Neurotrauma Care**

Tuesday, May 4, 2:00–5:00 PM  
Room 113B, Pennsylvania Convention Center

*Fee: $100*  
Free for N&PE

*Moderator: Twyila Lay, NP, MS*

*Speakers:*

Jonathan R. Jagid, MD  
Marianne E. Langlois, PA-C  
Ava Puccio, RN, PhD  
Shirley I. Stiver, MD, PhD  
Shelly D. Timmons, MD, PhD

This seminar will explore the physiological basis for critical decision making and evidenced based treatments for some of the most common traumatic
disorders including traumatic brain injury, neurovascular injury and spinal trauma. Using a fun and interesting case based approach, this seminar is designed for nurses, physician assistants, nurse practitioners and other allied health professionals interested in the latest information and state-of-the-art treatment of neurosurgical injury.

Learning Objectives: After completing this educational activity, participants should be able to:

- Discuss patient directed therapies utilizing pathophysiological indicators of cerebral blood flow dynamics for the treatment of intracranial hypertension
- Discuss diagnosis, interventions, treatment and complications of vascular injuries in the setting of trauma
- Discuss the evidence for acute spinal cord decompression versus medical management and identify current therapeutic modalities
- Discuss the use of deep brain stimulation in the setting of traumatic brain injury

501

Endovascular Management of Ischemic and Hemorrhagic Stroke

Wednesday, May 5, 2:00–5:00 PM
Room 113C, Pennsylvania Convention Center

Fee: $100
Free for N&PE

Moderator:
Adnan H. Siddiqui, MD, PhD

Speakers:
Peng Roc Chen, MD
Kai U. Frerichs, MD
Elad I. Levy, MD, FACS
Kenneth M. Liebman, MD
Laura Mason, ANP-C

The course will provide a comprehensive introduction to endovascular management of ischemic and hemorrhagic stroke.

The design will allow participants to familiarize themselves with the diagnosis and management of ischemic stroke and its attendant predisposing disease states including cardiac embolic sources, as well as carotid and intracranial atherosclerotic disease.

Subarachnoid hemorrhage resulting from ruptured intracranial aneurysms will be discussed with specific discussion of management of acute ruptured aneurysms, as well as current endovascular therapies for associated delayed vasospasm.

Learning Objectives: After completing this educational activity, participants should be able to:

- Explain the demographics of ischemic and hemorrhagic stroke
- Describe causes and endovascular management of ischemic stroke, secondary to cardiac disease, intracranial and extracranial atherosclerosis and dissection
- Detail endovascular diagnosis and management of hemorrhagic stroke resulting from ruptured aneurysms, arteriovenous malformations and fistulae

NOT A MEMBER OF AANS?

RNs, NPs, and PAs are encouraged to become AANS members in the Associate category. Requirements include proof of certification and letters of recommendation from three AANS voting members. For a list of member benefits and access to the online application, please go to http://www.aans.org/membership/membership.asp.
RESIDENT, FELLOW AND MEDICAL STUDENT ACTIVITIES

RESIDENT'S NOTE
Neurosurgical residents and fellows in North America receive free membership in the AANS! Visit the AANS Resource Center in the Exhibit Hall to learn more about membership benefits, or visit www.aans.org/residents/.

INTERNATIONAL RESIDENT/FELLOW
This membership category offers free membership to residents or fellows who are enrolled in a verifiable non-North American neurosurgical training program. Once certification is obtained, the International Resident/Fellow Member may request transfer to International member status with the submission of a copy of their certification certificate. For more information, please visit the AANS Resource Center, Booth #1725 in the Exhibit Hall or the membership area of www.AANS.org.

MARSHAL PROGRAM
The Annual Meeting Marshal Subcommittee has long depended on the volunteer activity of many individuals to insure the quality and success of the practical clinics and breakfast seminars. This year the committee will also need volunteers to assist with the pioneering effort of using an exclusively wireless mobile platform for the first time.

Benefits of the program
In return for volunteering, each person can:
- Attend one practical clinic or breakfast seminar, free of charge. There is potential to attend more if there are open sessions at the start of the meeting
- Meet the senior members of the organization
- Take advantage of training on the use of the AANS iPod touch® application

Responsibilities include:
- Assist attendees in using their iPod touch®, staffing designated areas at assigned times during the meeting
- Marshal the breakfast seminar or practical clinic you attend (instructions will be provided)
- Assist in session operation during practical clinics or breakfast seminars as directed

For those already signed up to Marshal, please report to the Marshal Office at least 30 minutes prior to your scheduled time. The office is located in Room 303B at the Pennsylvania Convention Center.

Office hours are as follows:
- **Friday:** 4:30 to 7:30 PM
- **Saturday and Sunday:** 6:30 AM to 5:30 PM
- **Monday and Tuesday:** 6:30 AM to 5:30 PM
- **Wednesday:** 6:30 to 10:00 AM

If you are interested in volunteering to serve as a Marshal onsite, please stop by the Marshal Office in Room 303B at any time during the above hours to check availability for open sessions.

SESSIONS FOR RESIDENTS, FELLOWS AND MEDICAL STUDENTS
Eleven exclusive practical clinics and fifteen breakfast seminars are being offered complimentary to residents, fellows and medical students which are:

PRACTICAL CLINICS
- **004** 3-D Anatomy and Approaches to the Supratentorial Area and Anterior Skull Base
- **005** Spinal Stabilization, Fusion and Instrumentations: Biomechanics and Techniques

BREAKFAST SEMINARS
- **103** Lumbar Spine Fusion
- **110** Advances in Carotid Disease: Surgery vs. Endovascular Therapy
- **118** Getting the Most Out of Your Residency
- **202** Multidisciplinary Management of Cerebral AVMs
- **209** Management of Vasospasm
- **211** Intramedullary Spinal Cord Tumors
- **213** Management of Asymptomatic Vascular Lesion
- **214** Neurosurgical Management of Intractable Pain
NEUROSURGICAL TOP GUN COMPETITION

For the fifth consecutive year, the Young Neurosurgeons Committee will present a competition for residents and fellows, located in booth #925 in the exhibit hall. This three-day event will include stations such as motion/tremor analysis, computer-simulated ventriculostomy and pedicle screw placement. Contestants will receive scores for their performance and the resident or fellow with the best score will receive the Neurosurgical Top Gun honor and prize. Winners will be presented on videoscreens in Concourse A upon completion of the event.

RESIDENT MENTORING PROGRAM

A Mentoring Reception is being held Sunday, May 2 by invitation only for members of this program in Independence Ballroom, Salon II of the Philadelphia Marriott Downtown from 5:45–6:30 PM.

To become a Neurosurgeon Mentor or to have a Neurosurgeon Mentor please contact the AANS or visit http://www.aans.org/residents/mentoring.asp.

127

Young Neurosurgeons (YNS) Luncheon

Monday, May 3, 1:00–2:45 PM
Room 108AB, Pennsylvania Convention Center

No Fee

Title:
The Ten Best Kept Secrets to a Successful Career

Moderator:
G. Edward Vates, MD, PhD

Speaker:
Harry R. van Loveren, MD
As the AANS hosts the first paperless scientific annual meeting, the AANS Resource Center located in the Exhibit Hall, booth #1725, is the place to go to learn about all that’s happening at AANS. Learn more about the use of the iPod touch®, its many features, and how the AANS will be integrating this innovative wireless mobile platform throughout every aspect of your experience with the AANS.

ANNUAL MEETING SPECIAL PROMOTIONS

- Place your onsite order of any patient education brochure pack and become eligible to win an iPod touch® travel speaker system.
- Order the new online sessions recorded from this year’s annual meeting and as a bonus, receive free access to the 2009 Online Presentations.

iPod touch®

Being at the forefront of medical education and continually looking for new ways to enhance members’ meeting experience, it was a natural progression for the AANS to utilize the iPod touch® for an annual scientific meeting. This device provides information literally at the touch of your fingertips, with a responsiveness that is both immediate and fluid.

The AANS is committed to ensuring that you are comfortable with your new device, and will provide technical support in the AANS Resource Center and throughout the convention center. If you have any questions or concerns, please be sure to seek out an AANS staff member on hand to assist in any way possible.

PUBLICATIONS

NEW! Tethered Cord Syndrome in Children and Adults, second edition by Shokei Yamada, MD.

Written by renowned specialists, the second edition of Tethered Cord Syndrome in Children and Adults is a comprehensive text on the essentials of clinical management for this complex disorder. Throughout the book, the authors provide insightful discussion of how to distinguish this disorder from others with similar symptoms and imaging findings.

Highlights:

- Delineates the three categories of “cord tethering” to aid effective management
- Discusses such important topics as in-utero surgical myelomeningocele repair and TCS-related aspects of clinical urology
- Provides expanded coverage of the treatment of adults with severe back and leg pain
- Covers management of late teenage patients whose care between childhood and adulthood is frequently interrupted
- Features more than 200 high-quality clinical photographs, radiographic images, and diagrams to illustrate key concepts

The only reference dedicated to optimizing the management of TCS, this book is an invaluable resource for residents and clinicians in neurosurgery, as well as other specialists caring for patients of all ages with TCS.

EDUCATION AND MEETINGS

Pick up the 2010 calendar of AANS Educational Courses – topics range from Oral Board and MOC preparation to practice management and coding workshops.

Also, view the AANS/SNS Neurosurgical Online Learning Sessions, which are offered free to members of the AANS and the Society of Neurological Surgeons. These sessions serve as a valuable learning tool for residents, neurosurgeons, physician assistants and nurses as they directly relate to the core cognitive curriculum of neurosurgery. Archived online for viewing any time, instruction is provided via audio narrated presentations. New sessions are added frequently, and most sessions now offer CME credit. Visit AANS.org/education for a complete list of all available activities.

AANSCODINGTODAY

The AANS has partnered with several companies to offer AANS members technological solutions to difficult practice issues—especially coding, billing and medical records. Stop in to pick up literature or talk to representatives about the following member programs:

- AANSCodingToday.com: AANS is offering our members preferred access to a comprehensive, easy-to-use online claims coding tool to assist member physicians with the constant changes in claims coding and billing rules that occur every year. In addition to containing the full list of CPT, HCPCS Level II and ICD-9 codes as well as CCI edits, Global information and Relative Value Units (RVU), AANS members who subscribe to AANSCodingToday.com will benefit from many new enhancements including navigational improvements, enhanced search capabilities, more local coverage decision results, direct links to modifier definitions, ability to add personal coding notes that are private and secure and many, many more.

AANSCodingToday is a product of Physicians Reimbursement Systems, Inc. (PRS). For more information, visit the AANS Resource Center, booth #1725, to talk to an AANSCodingToday representative or stop by for a demonstration.
A new site design allows for improved usability, streamlining the registration process and providing a new resource for your professional needs.

Users can keep an updated record of their activity and their accomplishments when they’re looking for and replying to multiple opportunities. It can be a challenge to track which jobs they have responded to, so the AANS Online Career Center allows candidates to track online activity and manage resumes or CVs all from one page.

Candidates can make connections at the conference each year. AANS Online Career Center allows job seekers to indicate their attendance at each year’s AANS Annual Meeting so that employers who are attending can connect with them and set up face-to-face meetings.

All features on the AANS Online Career Center are free to job seekers and are easy to use with simple instruction and templates.

Visit with an AANS Online Career Center representative to learn how easy it is to search for employment opportunities, or how to advertise open positions.

**NEUROSURGERY PAC**

Federal policymakers have a huge impact on how neurosurgeons practice, when we practice, what we get paid and what patients we see; this influence is only growing stronger. In order to maximize effective advocacy efforts on behalf of neurosurgery, the AANS has yet another tool in its advocacy arsenal: a political action committee called NeurosurgeryPAC.

Its mission is to support candidates for federal office who support neurosurgeons. NeurosurgeryPAC does this by making direct campaign contributions to candidates for the U.S. Senate and the U.S. House of Representatives who are supportive of the issues important to neurosurgery. NeurosurgeryPAC is nonpartisan and does not base its decisions on party affiliation, but instead focuses on the voting records and campaign pledges of the candidates.

Stop by the NeurosurgeryPAC booth outside the Exhibit Hall in Concourse A, to learn about current campaigns, recent successes and how you can help. AANS members who are citizens of the United States and who pay dues or have voting privileges can make contributions at the booth located outside of the exhibit hall.

**AANS PARTNERS**

**NextGen EHR**

Next Gen Healthcare will provide an overview on the benefits of electronic medical records and will showcase their award-winning system (NextGen EHR). NextGen® EHR facilitates point-of-care documentation, coding accuracy, and robust reporting in an easy-to-use Windows design. NextGen® EHR includes content specific to neurosurgery, with workflow templates and tools designed uniquely for the specialty. NextGen’s EHR system is appropriate for any size medical practice-solo or small practice or large, multiprovider, multilocation group. Benefits to using an EHR include transcription savings, record availability, stronger care management, improved patient safety and coding optimization. Providers that want to share and manage clinical and
administrative patient information through a comprehensive, single-source application should visit www.nextgen.com or stop by their booth #2039.

**Thieme Medical Publishers**
In partnership with the AANS to co-publish neurosurgical publications, Thieme Medical Publishers is a major international publisher that produces more than 130 journals and 400 new books each year. To review new publications and take advantage of the 10 percent Member discount, be sure to visit Thieme at their booth #1732.

**NREF DONOR AND GRANT RECEPTION**
Annually, the NREF recognizes the generous support it receives at the AANS meeting through the NREF Donor and Grant Recipient Reception. The NREF Reception is an “invitation only” event, whereby Cushing Donor level supporters ($1000 and up) have the opportunity to meet incoming and outgoing Research Fellows and Young Clinician Investigators. This exclusive event is scheduled Tuesday evening at the headquarters hotel, the Philadelphia Marriott Downtown. To ensure you are recognized among this benevolent group and amongst the invitees to the NREF Reception, make your donation to the NREF through the AANS Annual Meeting Registration Form, www.aans.org/Research), at registration or stop by the AANS Resource Center, booth #1725.

**NREF RESEARCH SYMPOSIUM**
**Tuesday, May 4**
**4:00–5:30 PM**
**Independence Ballroom, Salons II & III**
**Philadelphia Marriott Downtown**

**BY INVITATION ONLY**
The NREF will host the third annual Research Symposium for Foundation contributors and grant recipients. Selected awardees that recently completed their research are invited to present their results. Members of the NREF’s Scientific Advisory Committee, led by Edward H. Oldfield, MD, will moderate the session. The symposium is intended to foster collegial ties among awardees and expose their work to academic faculty and department chairs. It will also afford NREF contributors the chance to see the impact of their support and the difference it has made to the residents and young faculty members who received research grants. Individual donors, corporate sponsors, department chairs and clinical sponsors, along with current and past NREF grant recipients are among the audience invited to attend this important research-related event.

**NEUROSURGERY RESEARCH AND EDUCATION FOUNDATION (NREF)**
Advancing neurosurgery through research since 1981, the NREF has continued to ensure the viability and expansion of the field of neurological surgery, based on fundamental research in the basic sciences and clinical enterprises pertinent to neurosurgery. Through support from the neurological community, the NREF has stimulated learning by neurosurgeons and enhanced educational opportunities throughout their careers. Over the past 29 years, the Foundation has established two grant programs to fulfill this need. The Research Fellowship provides research training for neurosurgeons who are preparing to dedicate their futures to the research and application of new scientific knowledge. The Research Fellowship is a two-year grant for $70,000 or a one-year grant of $40,000. The one year Young Clinician Investigator Award (YCI) is a $40,000 grant, which provides young faculty members funding for pilot studies, which enables them to develop preliminary data to support applications for more permanent funding.

Have you supported the NREF yet this year? Now you can make your contribution to the Foundation at the AANS Resource Center, Booth #1725. This year, the NREF will have someone available to take donations, provide updated information about programs and answer any questions.

Your support is needed now more than ever to help expand the NREF’s mission of funding important, potentially life-saving research projects this year!

For more information on how you can support the NREF or to pick up information on the various grants and fellowships available through the NREF, visit the AANS Resource Center, Booth #1725 or visit www.aans.org/research.
SECTION ACTIVITIES

AANS SECTION ON THE HISTORY OF NEUROLOGICAL SURGERY

SUNDAY
Business Meeting
2:30–4:00 PM
Room 415, Philadelphia Marriott Downtown

MONDAY
History Dinner
6:00–9:30 PM
Pennsylvania Academy of the Fine Arts

WEDNESDAY
Section Session
2:45–5:30 PM
Room 203AB, Pennsylvania Convention Center

AANS/CNS SECTION ON NEUROTRAUMA AND CRITICAL CARE

MONDAY
Executive Committee Meeting
1:00–2:45 PM
Room 307, Philadelphia Marriott Downtown

TUESDAY
Section Session
2:45–5:30 PM
Room 202AB, Pennsylvania Convention Center

AANS/CNS SECTION ON PAIN

SUNDAY
4:00–6:00 PM
Room 309, Philadelphia Marriott Downtown

WEDNESDAY
Section Session
2:45–5:30 PM
Room 202AB, Pennsylvania Convention Center

AANS/CNS SECTION ON PEDIATRIC NEUROLOGICAL SURGERY

WEDNESDAY
Executive Committee Meeting
1:00–2:30 PM
Room 201C, Pennsylvania Convention Center

Section Session
2:45–5:30 PM
Room 203AB, Pennsylvania Convention Center

AANS/CNS SECTION ON TUMORS

MONDAY
Executive Committee Meeting
1:00–2:45 PM
Franklin Room 1, Philadelphia Marriott Downtown

TUESDAY
Section Session (Tumors I)
2:45–5:30 PM
Room 201AB, Pennsylvania Convention Center

Tumor Section Reception
5:45–7:30 PM
Liberty Ballroom, Salon B, Philadelphia Marriott Downtown

Business Meeting
4:15–4:20 PM
Room 201AB, Pennsylvania Convention Center

WEDNESDAY
Section Session (Tumors II)
2:45–5:30 PM
Room 201AB, Pennsylvania Convention Center

WOMEN IN NEUROSURGERY (WINS)

SUNDAY
Executive Committee Meeting
1:45–4:45 PM
Room 409, Philadelphia Marriott Downtown

TUESDAY
Executive Committee Meeting
1:00–2:30 PM
Room 309, Philadelphia Marriott Downtown

Section Session
2:45–5:30 PM
Room 202AB, Pennsylvania Convention Center

AANS/CNS CEREBROVASCULAR SECTION

SUNDAY
Executive Committee Meeting
4:00–6:00 PM
Independence Ballroom, Salons II & III, Philadelphia Marriott Downtown

TUESDAY
Section Session
2:45–5:30 PM
Room 201C, Pennsylvania Convention Center

Business Meeting
5:31–6:00 PM
Room 201C, Pennsylvania Convention Center

AANS/CNS SECTION ON DISORDERS OF THE SPINE AND PERIPHERAL NERVES

MONDAY
Executive Committee Meeting
1:00–2:00 PM
Franklin Room 2, Philadelphia Marriott Downtown

TUESDAY
Section Session (Spine)
2:45–5:30 PM
Room 204AB, Pennsylvania Convention Center

Matson Lecture Reception
6:30–7:30 PM
Independence Ballroom, Salon III, Philadelphia Marriott Downtown

AANS/CNS SECTION ON STEREOTACTIC & FUNCTIONAL NEUROSURGERY

TUESDAY
Executive Committee Meeting
1:00–2:30 PM
Room 309, Philadelphia Marriott Downtown

Section Session
2:45–5:30 PM
Room 202AB, Pennsylvania Convention Center

TUESDAY
Executive Committee Meeting
1:00–2:45 PM
Franklin Room 1, Philadelphia Marriott Downtown

Section Session
2:45–5:30 PM
Room 203AB, Pennsylvania Convention Center

AANS/CNS SECTION ON CEREBROVASCULAR SECTION

AANS/CNS SECTION ON PAIN

TUESDAY
Section Session (Tumors I)
2:45–5:30 PM
Room 201AB, Pennsylvania Convention Center

Tumor Section Reception
5:45–7:30 PM
Liberty Ballroom, Salon B, Philadelphia Marriott Downtown

Business Meeting
4:15–4:20 PM
Room 201AB, Pennsylvania Convention Center

WEDNESDAY
Section Session (Tumors II)
2:45–5:30 PM
Room 201AB, Pennsylvania Convention Center

WOMEN IN NEUROSURGERY (WINS)

SUNDAY
Executive Committee Meeting
1:45–4:45 PM
Room 409, Philadelphia Marriott Downtown

TUESDAY
Executive Committee Meeting
1:00–2:30 PM
Room 309, Philadelphia Marriott Downtown

Section Session
2:45–5:30 PM
Room 202AB, Pennsylvania Convention Center
THURSDAY, APRIL 29

AANS Finance Committee
7:30-10:00 AM
Franklin Room 1, Philadelphia Marriott Downtown

AANS Strategic Planning Committee
10:00 AM-12:00 PM
Franklin Room 1, Philadelphia Marriott Downtown

AANS Executive Committee
12:00-5:00 PM
Franklin Room 1, Philadelphia Marriott Downtown

FRIDAY, APRIL 30

AANS Board of Directors
8:00 AM-5:00 PM
Liberty Ballroom, Salons A & B, Philadelphia Marriott Downtown

CSNS Communications and Education Committee
8:00-10:00 AM
Franklin Room 6, Philadelphia Marriott Downtown

CSNS Information Conference for New Members
9:30-10:00 AM
Franklin Room 5, Philadelphia Marriott Downtown

CSNS Executive Committee
10:00-11:00 AM
Franklin Room 7, Philadelphia Marriott Downtown

CSNS Young Neurosurgeon’s Representative Section
10:30 AM-12:00 PM
Franklin Room 3, Philadelphia Marriott Downtown

CSNS Membership/State Societies
11:00 AM-12:00 PM
Room 406, Philadelphia Marriott Downtown

CSNS Resident Fellowship, Leadership Development and Mentoring
11:00 AM-12:00 PM
Room 405, Philadelphia Marriott Downtown

CSNS Website Sub-Committee
11:00 AM-12:00 PM
Room 408, Philadelphia Marriott Downtown

CSNS Coding and Reimbursement
12:00-1:30 PM
Franklin Room 13, Philadelphia Marriott Downtown

CSNS Medical Legal
12:00–1:30 PM
Franklin Room 10, Philadelphia Marriott Downtown

CSNS Medical Practices
12:00–1:30 PM
Franklin Room 11, Philadelphia Marriott Downtown

CSNS Neurotrauma and Emergency Neurosurgery
12:00–1:30 PM
Franklin Room 12, Philadelphia Marriott Downtown

CSNS Workforce
12:00–1:30 PM
Franklin Room 8, Philadelphia Marriott Downtown

CSNS Plenary Session
1:30–5:30 PM
Grand Ballroom, Salons E & F, Philadelphia Marriott Downtown

CSNS Reference Committee
4:15–5:30 PM
Franklin Room 4, Philadelphia Marriott Downtown

CSNS Resident and Awards Reception
5:45–7:45 PM
Grand Ballroom, Salon C, Philadelphia Marriott Downtown

SATURDAY, MAY 1

CSNS – AANS Caucus
7:00–9:00 AM
Franklin Room 3, Philadelphia Marriott Downtown

CSNS – CNS Caucus
7:00–9:00 AM
Franklin Room 4, Philadelphia Marriott Downtown

CSNS Northeast Quadrant
7:00–9:00 AM
Franklin Room 6, Philadelphia Marriott Downtown

CSNS Northwest Quadrant
7:00–9:00 AM
Franklin Room 5, Philadelphia Marriott Downtown

CSNS Southeast Quadrant
7:00–9:00 AM
Franklin Room 9, Philadelphia Marriott Downtown

CSNS Southwest Quadrant
7:00–9:00 AM
Franklin Room 8, Philadelphia Marriott Downtown

ThinkFirst Chapter Meeting
8:00 AM–4:00 PM
Conference Suite 2, Philadelphia Marriott Downtown

CSNS Plenary Session
9:00–11:30 AM
Grand Ballroom, Salons E & F, Philadelphia Marriott Downtown

CSNS Luncheon
11:30 AM–1:00 PM
Grand Ballroom, Salon A, Philadelphia Marriott Downtown

AANS Emerging Technology Committee
1:00–2:30 PM
Room 304, Philadelphia Marriott Downtown
<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>CSNS Executive Committee</td>
<td>1:00–2:30 PM</td>
<td>Franklin Room 10, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>AANS/CNS Joint Guideline Committee Evidence Based Methodology Refresher Course</td>
<td>2:00–3:00 PM</td>
<td>Room 308, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS/CNS Joint Guideline Committee</td>
<td>3:00–6:00 PM</td>
<td>Room 308, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Information Technology Committee</td>
<td>3:30–5:00 PM</td>
<td>Room 305, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Maintenance of Certification Committee</td>
<td>3:30–5:00 PM</td>
<td>Room 302, Philadelphia Marriott Downtown</td>
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<tr>
<td>NeurosurgeryPAC Board Meeting</td>
<td>4:30–5:30 PM</td>
<td>Room 307, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Van Wagenen Luncheon</td>
<td>11:30 AM–1:00 PM</td>
<td>Room 410, Philadelphia Marriott Downtown</td>
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<tr>
<td>Quality Improvement Workgroup</td>
<td>11:30 AM–1:00 PM</td>
<td>Franklin Room 9, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Membership Committee</td>
<td>12:00–1:00 PM</td>
<td>Franklin Room 5, Philadelphia Marriott Downtown</td>
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<tr>
<td>Journal of Neurosurgery Publishing Group Finance Committee</td>
<td>12:00–1:00 PM</td>
<td>Franklin Room 8, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Education and Practice Management Committee</td>
<td>12:30–2:00 PM</td>
<td>Room 310, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Van Wagenen Fellowship Committee Meeting</td>
<td>1:00–2:30 PM</td>
<td>Conference Suite 2, Philadelphia Marriott Downtown</td>
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<tr>
<td>CSNS State Societies Think Tank Meeting</td>
<td>1:00–3:00 PM</td>
<td>Franklin Room 10, Philadelphia Marriott Downtown</td>
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<tr>
<td>Neuronsurgery Research and Education Foundation Executive Council Meeting</td>
<td>2:30–4:00 PM</td>
<td>Franklin Room 1, Philadelphia Marriott Downtown</td>
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<tr>
<td>NeurosurgeryPAC Board Meeting</td>
<td>4:30–5:30 PM</td>
<td>Room 307, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Joint Sponsorship Council</td>
<td>3:15–4:15 PM</td>
<td>Room 304, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS/CNS Joint Committee of Military Neurosurgeons</td>
<td>4:00–6:00 PM</td>
<td>Franklin Room 2, Philadelphia Marriott Downtown</td>
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<tr>
<td>American Academy of Neurological Surgery</td>
<td>4:00–6:00 PM</td>
<td>Room 308, Philadelphia Marriott Downtown</td>
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<tr>
<td>Federation of Latin American Neurosurgeons</td>
<td>4:00–5:00 PM</td>
<td>Room 408, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Neurosurgeon Editorial Board</td>
<td>4:30–6:00 PM</td>
<td>Room 302, Philadelphia Marriott Downtown</td>
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**SUNDAY, MAY 2**

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<tr>
<th>Event</th>
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<tbody>
<tr>
<td>AANS Leadership Orientation</td>
<td>8:00–9:30 AM</td>
<td>Independence Ballroom, Salon I, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>ThinkFirst Board of Directors Meeting</td>
<td>8:00 AM–5:00 PM</td>
<td>Room 307, Philadelphia Marriott Downtown</td>
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<tr>
<td>Neurosurgery Summit</td>
<td>9:00 AM–12:00 PM</td>
<td>Room 303, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>AANS International Outreach Committee</td>
<td>10:30 AM–12:00 PM</td>
<td>Room 411, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Publications Committee Meeting</td>
<td>2:00–3:30 PM</td>
<td>Room 412, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS History Section Business Meeting</td>
<td>2:30–4:00 PM</td>
<td>Room 415, Philadelphia Marriott Downtown</td>
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<tr>
<td>AANS Public Relations Committee</td>
<td>2:30–4:00 PM</td>
<td>Room 413, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>Neurosurgery Research and Education Foundation Executive Council Meeting</td>
<td>2:30–4:00 PM</td>
<td>Franklin Room 1, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>SNS Bootcamp Courses-Steering Committee</td>
<td>3:00–5:00 PM</td>
<td>Room 405, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>AANS Joint Sponsorship Council</td>
<td>3:15–4:15 PM</td>
<td>Room 304, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>AANS/CNS Joint Committee of Military Neurosurgeons</td>
<td>4:00–6:00 PM</td>
<td>Franklin Room 2, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>American Academy of Neurological Surgery</td>
<td>4:00–6:00 PM</td>
<td>Room 308, Philadelphia Marriott Downtown</td>
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<tr>
<td>Federation of Latin American Neurosurgeons</td>
<td>4:00–5:00 PM</td>
<td>Room 408, Philadelphia Marriott Downtown</td>
</tr>
<tr>
<td>AANS Neurosurgeon Editorial Board</td>
<td>4:30–6:00 PM</td>
<td>Room 302, Philadelphia Marriott Downtown</td>
</tr>
</tbody>
</table>
ABIC General Meeting
5:00–6:00 PM
Grand Ballroom, Salon C, Philadelphia Marriott Downtown

ACS Advisory Council for Neurological Surgery
5:00–6:30 PM
Room 305, Philadelphia Marriott Downtown

Dartmouth Reception
5:30–6:30 PM
Room 406, Philadelphia Marriott Downtown

Resident Mentoring Reception
5:45–6:30 PM
Independence Ballroom, Salon II, Philadelphia Marriott Downtown

AANS Development Committee Meeting
6:15–7:30 AM
Franklin Room 6, Philadelphia Marriott Downtown

AANS /CNS Drugs and Devices Committee
6:30–7:30 AM
Franklin Room 5, Philadelphia Marriott Downtown

AANS Bylaws Committee
6:30–7:15 AM
Franklin Room 7, Philadelphia Marriott Downtown

MONDAY, MAY 3

AANS Ethics Committee
1:00–2:00 PM
Franklin Room 8, Philadelphia Marriott Downtown

AANS Member Benefit Development Committee
1:00–2:30 PM
Room 305, Philadelphia Marriott Downtown

World Neurosurgery Editorial Board Meeting
4:00–5:00 PM
Franklin Room 3, Philadelphia Marriott Downtown

AANS Young Neurosurgeons Committee Meeting
5:30–7:00 PM
Franklin Room 11, Philadelphia Marriott Downtown

Cleveland Clinic AANS Alumni Reception
5:30–7:00 PM
Room 305, Philadelphia Marriott Downtown

MISTIES Trial Investigators Meeting
5:30–8:00 PM
Grand Ballroom, Salon K, Philadelphia Marriott Downtown

North American Gamma Knife Consortium
5:30–7:00 PM
Room 408, Philadelphia Marriott Downtown

University Hospitals Case Medical Center/Case Western Reserve University School of Medicine Department of Neurological Surgery Alumni Reception
5:30–7:00 PM
Grand Ballroom, Salon I, Philadelphia Marriott Downtown

WFNS Skull Base Surgery Committee Meeting
5:30–6:30 PM
Room 411, Philadelphia Marriott Downtown

Jefferson Neurosurgery Cocktail Reception
6:00–8:00 PM
Room 302, Philadelphia Marriott Downtown

Medical College of Wisconsin – Neurosurgery Reception
6:00–8:00 PM
Room 405, Philadelphia Marriott Downtown

Stanford University Neurosurgery Alumni Reception
6:00–8:00 PM
Franklin Room 4, Philadelphia Marriott Downtown

University of Colorado Alumni Reception
6:00–9:00 PM
Room 301, Philadelphia Marriott Downtown

University of Texas Health Science Center Department of Neurosurgery Alumni Reception
6:00–8:00 PM
Room 310, Philadelphia Marriott Downtown

Dandy Society Reception
6:30–8:30 PM
Room 309, Philadelphia Marriott Downtown

Clinic Alumni Association
6:30–8:00 PM
Room 409, Philadelphia Marriott Downtown

MGH Alumni Reception
6:30–8:30 PM
Room 304, Philadelphia Marriott Downtown

Semmes-Murphey/University of Tennessee Resident Reunion
6:30–8:00 PM
Room 404, Philadelphia Marriott Downtown

Stuart Rowe Reception
6:30–8:00 PM
Room 410, Philadelphia Marriott Downtown

University of Iowa Friends and Alumni Reception
6:30–8:00 PM
Room 306, Philadelphia Marriott Downtown

Wayne State University Reception
6:30–8:00 PM
Room 308, Philadelphia Marriott Downtown

AANS Young Neurosurgeons Reception
7:00–7:30 PM
Franklin Room 12, Philadelphia Marriott Downtown
TUESDAY, MAY 4

Columbia University – Department of Neurosurgery Cocktail Hour
7:00–9:00 PM
Room 303, Philadelphia Marriott Downtown

ABNS Advisory Committee Luncheon
1:00–2:30 PM
Room 404, Philadelphia Marriott Downtown

Neuropoint SD Investigators Meeting
1:00–2:00 PM
Room 408, Philadelphia Marriott Downtown

2011 AANS Annual Meeting
Scientific Program Planning Committee
2:30–5:30 PM
Room 302, Philadelphia Marriott Downtown

Neurosurgery Research and Education Foundation Research Symposium
4:00–5:30 PM
Independence Ballroom, Salons II & III, Philadelphia Marriott Downtown

Neurosurgery Research and Education Foundation Donor and Grant Reception
5:30–7:00 PM
Independence Ballroom, Salon I, Philadelphia Marriott Downtown

Yale University Alumni Dinner
7:00–10:00 PM
Room 410, Philadelphia Marriott Downtown

WEDNESDAY, MAY 5

Exhibit Advisory Committee
12:30–2:00 PM
Room 305, Philadelphia Marriott Downtown

2010/2011 Annual Meeting Committee/Scientific Program Committee Post Meeting
2:00–3:30 PM
Room 304, Philadelphia Marriott Downtown
The AANS wishes to thank the following companies for their year-long support of the Annual Meeting.

**SILVER PATRON**  
$25,000 – $49,999  
Codman, a Johnson & Johnson company  
DePuy, a Johnson & Johnson company

**BRONZE PATRONS**  
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NuVasive, Inc.  
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*As of April 7, 2010*

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Aesculap Inc.  
ALOKA Ultrasound  
Alpha Omega  
Anspach Companies  
Biomet Spine  
Brainlab, Inc.  
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As a way for corporate partners and organizations dedicated to neurosurgery to collaborate with the AANS aside from their traditional support, the AANS established the Pinnacle Partners in Neurosurgery program. This corporate giving program offers corporations many different opportunities to work with the AANS in the areas of training, education and advancing the neurosurgical specialty. Participation in the program affords corporate partners added recognition and benefits not only through the annual meeting but throughout the year, involvement with the thought-leaders in neurosurgery and its subspecialties and the chance to further neurosurgical research through the Neurosurgery Research and Education Foundation (NREF). The Pinnacle Partners in Neurosurgery is strengthening ties between the AANS and corporate partners, both of whom are committed to advancing the field of neurosurgery!

As of March 2010, Pinnacle Partners in Neurosurgery participants include:

Accuray, Inc.  
Biomet Spine  
Boston Scientific Neurovascular  
Brainlab, Inc.  
Carl Zeiss Meditec, Inc.

Codman & Shurtleff, Inc., a Johnson & Johnson company  
Covidien  
DePuy Spine, a Johnson & Johnson company  
Elekta  
ev3, the Endovascular Company  
Globus Medical  
Integra Foundation  
Medtronic  
MicroVention Inc.  
SpineWave, Inc.  
Synthes Spine  
Stryker  
Varian Medical Systems

For additional information about these dedicated companies or the AANS’ Pinnacle Partners in Neurosurgery program, visit www.aans.org/corporate or contact the Development department at 847-378-0500.
AANS
5550 Meadowbrook Drive
Rolling Meadows, IL 60008
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Booth #1725

The AANS is pleased to present the 78th annual scientific meeting using the Apple iPod touch®. With this device, you will be able to access and integrate every aspect of the Philadelphia Annual Meeting.

The AANS continually offers many benefits to its members including innovative educational programming, clinical 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 Journals of Neurosurgery, AANS Online Career Center, malpractice insurance, medical transcription services and more! Additional information on these programs may be found in the Products and Services area on this device.

For assistance and/or charging stations for your iPod touch, please be sure to visit the AANS Resource Center, booth 1725, in the exhibit hall.

AANS/CNS Sections
5550 Meadowbrook Drive
Rolling Meadows, IL 60008-3852
(847)378-0500
www.AANS.org
Booth #1728

Visit the AANS/CNS Section booth for section news, membership application information and information on upcoming meetings.

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www.acracut.com
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www.alphaomega-eng.com
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www.alphatecspine.com
*Booth #1109*

Alphatec Spine, Inc. is a medical device company that designs, develops, manufactures and markets products for the surgical treatment of spine disorders, with a primary focus on disorders affecting the aging spine.

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www.arthrocarespine.com
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Booth #1203

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 Schaumburg, IL 60173
(847)244-2500
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www.cosmanmedical.com
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(973)808-0019
www.customspine.com
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Houston, TX 77058
(281)228-7320
www.cyberonics.com
Booth #1218

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Raynham, MA 02767
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www.depuyspine.com
Booth #1203

DePuy Spine, Inc., a Johnson & Johnson company, stands at the forefront of the worldwide spine market offering a broad portfolio of patient-focused products and solutions for spinal disorders backed by a robust pipeline, world-class evidence-based research, education, training and customer service. The company is headquartered in Raynham, Massachusetts.

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EGI offers patient friendly 32, 64, 128 and 256 channel EEG Systems and Geodesic Sensor Nets with quick application, no scalp abrasion, and no paste. Every component is designed to maximize patient comfort, while enhancing clinical performance and productivity. Features for research include source estimation and IMRI compatible systems.

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(516)594-3333
www.elekta.com

**Booth #2602**

Based in Gainesville, Fla., Elekta develops and markets orthopaedic implant devices, related surgical instruments and biologic materials and services to hospitals and physicians. Exactech’s orthopaedic products are used in the restoration of bones and joints that have deteriorated as a result of injury or diseases such as arthritis.

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Audubon, PA 19403
(610)415-9000
www.globusmedical.com
**Booth #2525**

Globus Medical is the largest privately held spinal implant manufacturer in the world with a single-minded focus on advancing spinal surgery. Globus has a full portfolio of spinal fusion products, burgeoning initiatives in biomaterials development and minimally invasive approaches, and is a leader in motion sparing technology. More at: www.globusmedical.com
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Hydrocephalus Association
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San Francisco, CA 94102
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www.hydroassoc.org
Booth #2232

The Hydrocephalus Association’s mission is to eliminate the challenges of hydrocephalus by stimulating innovative research and providing support and education for individuals, families and professionals dealing with the condition. In pursuit of this purpose, the Hydrocephalus Association is building a national network of partners to increase its influences and reach across the country.

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Innovasis
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Innovasis is a rapidly growing company engaged in the research, development, manufacturing and marketing of spinal implant devices and related products. Innovasis offers a product line with implants and instruments that address the major pathologies and focus areas of traditional spinal surgeries and new technologies to assist better patient outcomes and results.

Integra LifeSciences
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www.integra-ls.com
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Integra markets a comprehensive portfolio of cranial and spinal neurosurgical implants and devices used in OR’s and ICU’s. The portfolio includes well-known brands such as DuraGen, Camino, CUSA, MAYFIELD, Radionics, Ruggles-Redmond, XKnife and a complete offering of brain mapping electrodes, hydrocephalus shunts, external ventricular drainage systems, and spinal fusion products.

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Invibio is the global market leader for implantable PEEK-based biomaterials with more than a decade of expertise in providing high quality biomaterials, including PEEK-OPTIMA polymer, and value-added services to spinal device manufacturers. Our proven biomaterials are used extensively in the development of advanced spinal implants, including motion preservation and dynamic stabilization.

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Leesburg, VA 20175
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www.K2M.com
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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.

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Jacksonville, FL 32250-0249
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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.
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LDR creates innovative fusion and non-fusion spinal technologies for surgeons and patients in 26 countries. The founders of LDR built the company with one focus: Spine. 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.

Leica Microsystems, in partnership with MedXChange, introduces a new high definition video technology.

Life Spine® is a full line spine company focused on providing innovative solutions to address spinal pathology from the occiput to the sacrum. A comprehensive product portfolio, focused on fusion devices, minimally invasive spine surgery, and motion preservation, has been created by Life Spine via strong strategic partnerships with surgeons.

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821 Fox Lane
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www.micruscorp.com
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(720)536-2391
www.pronerve.com
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ProNerve is the leader in interoperative nerve monitoring services. Our professional read center provides real time monitoring of wave forms for our direct CNIM certified technologists, in house programs or other IOM companies. Our technologists are also authorized to cover Navigation Cases on a contracted or as needed basis.

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Germany
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ICP monitoring system with direct connection to the patient monitor

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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.

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(888)826-9702
www.usa.siemens.com/healthcare
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Siemens Medical Solutions USA, Inc. is one of the world’s largest suppliers to the healthcare industry and the first full-service diagnostics company. The company is known for bringing together innovative medical technologies, healthcare information systems, management consulting, and support services, to help customers achieve tangible, sustainable, clinical, and financial outcomes.

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www.signusmedical.com
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www.spinesource.net
Phone: (636)519-0268
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www.spineview.com
Booth #1539
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www.spinewave.com
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www.spinewave.com

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(212)213-2121
www.spineart.us
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San Francisco, CA 94105
(415)512-2502
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(651)256-8500
www.spineology.com
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www.surgitel.com  
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(949)900-6833  
www.surgivision.com  
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www.tedansurgical.com  
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TrueVision Systems, Inc.
Ste. L
114 E. Halley Street
Santa Barbara, CA 93101
(805)963-9700
www.truevisionsys.com
Booth #1629
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(636)519-0268
www.ulrichmedicalusa.com
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<thead>
<tr>
<th>Company Name</th>
<th>Booth Number</th>
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<tr>
<td>AANS</td>
<td>1725</td>
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<td>1728</td>
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<td>Advanced Medical Technologies AG</td>
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<td>Alpha Omega</td>
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<td>2031</td>
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<td>2143</td>
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## EXHIBITOR LISTING – BY PRODUCT AND SERVICE CATEGORY

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<td>Think First Foundation</td>
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### PHARMACEUTICALS

| Cadence Pharmaceuticals, Inc. | 1749 |
| EISAI Inc                     | 1225 |
| EMD Serono                    | 1008 |

### PRACTICE MANAGEMENT

| Allmeds                        | 1119 |
| American Express Open          | 2437 |
| Blue Chip Surgical Center Partners | 1748 |
| Nextgen Healthcare Information Systems, Inc. | 2039 |
| Priority Consult               | 2137 |
| ProNerve, LLC                  | 2609 |

### PUBLISHERS

| AANS                           | 1725 |
| Congress of Neurological Surgeons | 2638 |
| Karger Publishers              | 1105 |
| Lippincott Williams & Wilkins  | 2343 |
| North American Spine Society   | 2044 |
| Quality Medical Publishing, Inc. | 2241 |
| ScienceTRAX                    | 2033 |
| Scientia, Rare Medical Books   | 1444 |
| Thieme Medical Publishers      | 1732 |
| W. B. Saunders Mosby-Elsevier  | 1200 |

### RECRUITERS

| CompHealth                     | 1548 |
| Kadlec Medical Center          | 1000 |
| LocumTenens.com                | 2539 |
| Pikeville Medical Center       | 1229 |
| RosmanSearch, Inc.             | 2433 |
| VISTA Staffing Solutions       | 2042 |

### REHABILITATION

| Aspen Medical Products         | 2337 |
| Bremer Group Company           | 2501 |
| Nexstim, Inc.                  | 2613 |
| Think First Foundation         | 1006 |

### RESEARCH, MEDICAL/MARKETING

| Ascension Technology Corp.     | 2143 |
| Medical Education & Research Institute | 2543 |
| Priority Consult               | 2137 |
| ScienceTRAX                    | 2033 |

### RIGID FIXATION/PLATING SYSTEM

| Biomet MicroFixation           | 1019 |
| CMF Medicon Surgical, Inc.     | 1649 |
| Globus Medical                 | 2525 |
| Innovasis                      | 1249 |
| Jeil Medical Corporation       | 1637 |
| Kinamed, Inc.                  | 2435 |
| KLS - Martin , LP              | 2213 |
| Life Spine                     | 2243 |
| Osteomed                       | 1843 |
| OsteoSymbionics LLC            | 1007 |
| Pioneer Surgical Technology   | 2532 |
| RSB Spine                      | 2135 |
| Solvay Advanced Polymers, LLC  | 2341 |
| Spine Wave Inc.                | 1443 |
| SpineGuard                     | 2037 |
| Spineology Inc                 | 2611 |
| Stryker NSE                    | 1701 |
| Synthes                        | 2507 |
| Ulrich Medical USA             | 2442 |
| US Spine                       | 2604 |
| X-Spine Systems                | 1135 |
| Zimmer Spine                   | 2425 |

### SHUNTS & VALVES

| Aesculap Inc.                  | 1503 |
| Integra LifeSciences           | 2103 |
| Sophysa                        | 1633 |

### SPINAL FIXATION INSTRUMENT

| Acra-Cut, Inc.                 | 1106 |
| Advanced Medical Technologies AG | 1131 |
| Alphatec Spine, Inc.           | 1109 |
| Amedica Corporation            | 1025 |
| Biomet Spine                   | 2125 |
| Custom Spine                   | 1335 |
| Fehling Surgical Instruments, Inc. | 1100 |
| Globus Medical                 | 2525 |
| gSource, LLC                   | 1117 |
| Innovasis                      | 1249 |
| LANX, Inc.                     | 2332 |
| Life Spine                     | 2243 |
| Medtronic                      | 2303 |
| minSURG Corporation            | 2048 |
| NuVasive, Inc.                 | 2324 |
| Pioneer Surgical Technology   | 2532 |
| Rhausler Inc.                  | 1549 |
| RSB Spine                      | 2135 |
| SeaSpine, Inc.                 | 2224 |
| Signus Medical, LLC            | 2342 |
| Solvay Advanced Polymers, LLC  | 2341 |
| Spine Wave Inc.                | 1443 |
| SpineGuard                     | 2037 |
| Spineology Inc                 | 2611 |
| Stryker NSE                    | 1701 |
| Synthes                        | 2507 |
| Ulrich Medical USA             | 2442 |
| US Spine                       | 2604 |
| X-Spine Systems                | 1135 |
| Zimmer Spine                   | 2425 |

### SPINAL CORD STIMULATION SYSTEM

| Boston Scientific Neurmodulation | 2132 |
| K2M Inc.                         | 1143 |
| Orthofix, Inc.                   | 1215 |
| St. Jude Medical                 | 1235 |

### STEREOTACTIC RADIOSURGERY

| Accuray Inc.                    | 1519 |
| Alpha Omega                     | 2548 |
| Elekta                          | 1425 |
| Integra LifeSciences            | 2103 |
| MASEP                           | 1037 |
## Sterilization Containers
- CareFusion 1724
- Fehling Surgical Instruments, Inc. 1100
- Karl Storz Endoscopy-America, Inc. 1736
- Scanlan International, Inc. 1101

## Surgical Instruments/Supplies
- Accutome 1745
- Advanced Medical Technologies AG 1131
- Aesculap Inc. 1503
- Alphatec Spine, Inc. 1109
- Apex Medical, Inc. 1328
- Apollo Spine 1449
- ArthroCare Corporation 2031
- Baitella AG 2236
- Baxano, Inc. 2126
- BOSS Instruments Ltd. 1134
- Buxton BioMedical, Inc. 1216
- CareFusion 1724
- CCV 2615
- CMF Medicon Surgical, Inc. 1649
- Elliquence 1848
- Fehling Surgical Instruments, Inc. 1100
- gSource, LLC 1117
- Integra LifeSciences 2103
- Jeil Medical Corporation 1637
- Joimax Inc. 1343
- Karl Storz Endoscopy-America, Inc. 1736
- Keeler Instruments Inc. 1631
- Kirwan Surgical Products, Inc. 2237
- KLS - Martin, LP 2213
- LANX, Inc 2332
- Life Instrument Corporation 1324
- Mizuho America, Inc. 1531
- NSK Nakanishi, Inc. 1121
- NuVasive, Inc. 2324
- Olsen Medical 1033
- OMT LLC 1949
- PeriOptix, Inc. 2128
- Pioneer Surgical Technology 2532
- PMT Corporation 2113
- Prescott's, Inc. 1330
- Pro Med Instruments, Inc. 2612
- Scanlan International, Inc. 1101
- Single Use Surgical Inc. 2139
- Solvay Advanced Polymers, LLC 2341
- Sontec Instruments 1434
- TeDan Surgical Innovations 1543
- Thompson Surgical Instruments, Inc. 1639
- Ulrich Medical USA 2442
- Wiggins Medical 2519

## Surgical Retractors
- Alphatec Spine, Inc. 1109
- American Surgical Sponges, Div. 1642
- BOSS Instruments Ltd. 1134
- CMF Medicon Surgical, Inc. 1649
- gSource, LLC 1117
- Pioneer Surgical Technology 2532
- Scanlan International, Inc. 1101
- Spine Surgical Innovations 1034
- TeDan Surgical Innovations 1543
- Thompson Surgical Instruments, Inc. 1639
- Zimmer Spine 2425

## Sutures/Sponges
- American Surgical Sponges, Div. 1642

## Telescopes, Surgical (Loupes)
- Carl Zeiss Meditec, Inc. 1315
- Designs For Vision Inc. 2124
- Keeler Instruments Inc. 1631
- SheerVision, Inc. 2240
- Surgical Acuity 1138
- SurgiTel/General Scientific Corporation 1228

## Ultrasound Equipment
- ALOKA Ultrasound 1220
- GE Healthcare 2219
- Misonix Inc. 2449

## Video Equipment
- BFW, Inc. 2035
- Ikegami Electronics (USA), Inc 1339
- Joimax Inc. 1343
- Karl Storz Endoscopy-America, Inc. 1736
- Leica Microsystems 1911
- Moeller-Wedel 2618
- Prescott's, Inc. 1330
- Products for Medicine 1640
- QED Medical 2545
- Stryker NSE 1701
- SunOptics 1032
- TrueVision Systems, Inc. 1629
REGISTRATION HOURS

6:30 AM–5:30 PM
Bridge Area, Pennsylvania Convention Center

For attendees participating in an all day clinic or in a morning and afternoon clinic, lunch will be served in Rooms 103ABC, Pennsylvania Convention Center, from 12:00–1:00 PM.

COFFEE BREAKS

9:45–10:15 AM
2:45–3:15 PM, Across from Room 108AB and Outside Room 201A

PRACTICAL CLINICS

8:00 AM–12:00 PM

001

Hands-On Peripheral Nerve of the Upper Extremities

Room 204B, Pennsylvania Convention Center

Co-directors:
Allan J. Belzberg, MD
Rajiv Midha, MD, MS, FRCS

Faculty:
John E. McGillicuddy, MD
Robert J. Spinner, MD, FACS
Christopher J. Winfree, MD
Lynda Jun-san Yang, MD, PhD
Eric L. Zager, MD

This hands-on clinic uses cadaver dissection to review clinically relevant anatomy and surgical approaches to the brachial plexus and upper extremity nerves.

Clinic Fee: $960

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the anatomy of upper extremity nerves
- Explain surgical approaches to upper extremity nerves and the brachial plexus

700

International Spine Masters

Room 104A, Pennsylvania Convention Center

Director:
Arnold H. Menezes, MD

Risk Factors in Cervical Spinal Cord Injury

Risk Factors for Mortality in Traumatic Cervical Spine Injury

Surgical Management of Cervical Degenerative Disk Disease

MRI and Lumbar Disc Disease

Anatomical and Biomechanical Considerations in the Craniovertebral Junction Approach

Anterior Approach to the Cervicothoracic Junction

Pediatric Scoliosis – Deformity Correction – When Should We Treat?

Lumbar Disc Treatment – Anterior vs. Posterior Procedures

Lumbar Degenerative Spondylolisthesis: Gold Standard Surgery

Cerebrospinal Fluid Flow and Intraoperative Monitoring of CSF Flow in Chiari Malformation

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the evaluation and management of a number of spinal pathologies including trauma, degenerative disease, and neoplasms
- List the advantages and disadvantages of spinal surgical techniques

701

International Stereotactic and Functional Masters

Room 104B, Pennsylvania Convention Center

Director:
G. Rees Cosgrove, MD, FRCSC

Facial Myofacial Pain Syndrome and Trigeminal Neuralgia

Safety and Quality in Functional Neurosurgery: Getting it Right Every Time

Cancer Pain: Neurosurgical Procedures in our Days

Advances in Surgical Treatment of Pain

Ablative Stereotactic Surgery for the Treatment of Refractory Psychiatric Disorders

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the evaluation and management of a number of spinal pathologies including trauma, degenerative disease, and neoplasms
- List the advantages and disadvantages of spinal surgical techniques
Results and Complications of Temporal Lobe Surgery for Epilepsy in Brazilian Research Center

**Speaker:** Joao Candido Araujo, MD

In this educational session leading international experts in stereotactic surgery will review the history of this specialty and describe how these methods are used in contemporary practice.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe the difference between framed and frame-less stereotactic methods
- Explain the strengths and limitations of CT imaging based stereotactic methods
- Describe the advantages and limitations of MRI based stereotactic methods
- Discuss how stereotactic atlases are used to provide target information
- Determine an appropriate entrance site for various target locations

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**International Neurovascular Masters**
Room 112A, Pennsylvania Convention Center

**Director:** Peter David Le Roux, MD

**Multiple Aneurysms**

**Speaker:** Atos Alves De Sousa, MD

**Language and Cognitive Disturbances Following Aneurysmal SAH: The Impact of Treatment**

**Speaker:** Hildo R. C. Azevedo-Filho, MD

**Decision Making on Unruptured Intracranial Aneurysms: Our Best Approach**

**Speaker:** Valter Da Costa, MD

---

**International Endoscopy Masters**
Room 112B, Pennsylvania Convention Center

**Director:** Luiz Carlos de Alencastro, MD

---

**Microsurgical Treatment of Large and Giant Internal Carotid Artery Aneurysms**

**Speaker:** Shalva Eliava, MD

**External Third Ventriculostomy During Microneurosurgical Clipping of Intracranial Aneurysms: An Alternative to Conventional Ventriculostomy**

**Speaker:** Jorge Luiz Kraemer, MD

**Unruptured Intracranial Aneurysms, What’s the Best Treatment**

**Speaker:** Christopher M. Loftus, MD, FACS

**Surgery of Paraclinoid Aneurysms**

**Speaker:** Felix Hendrik Pahl, MD

This is a didactic course comprised of lectures, case presentations and discussion addressing intracranial neurovascular disease. The management and treatment outcomes for vascular malformations, aneurysms, and intracerebral hemorrhage will be reviewed.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe the pathogenesis, natural history, evaluation and medical and surgical management of the entire spectrum of intracranial vascular disease including vascular malformations, aneurysms and intracerebral hemorrhage
- List the treatment options for each of these pathological conditions and explain the latest treatment concepts

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**Pure Neuroendoscopic Approach for Intraventricular Tumors in Pediatric Patients**

**Speaker:** Sergio Cavaleiro, MD

**Endoscopic Approaches to Fourth Ventricle Cysticercosis**

**Speaker:** Americo Rubens Leite dos Santos, MD

**Endoscopic Approaches to Intraparenchimal Hematomas**

**Speaker:** Luiz Carlos de Alencastro, MD

**Endoscopic Removal of Colloid Cysts: A Tailored Approach**

**Speaker:** Mark M. Souweidane, MD

**Endoscopic Treatment of Pituitary Tumors**

**Speaker:** Philip V. Theodosopoulos, MD

**Basal Encephaloceles: Endoscopic Approach**

**Speaker:** Samuel Tau Zymberg, MD

This is a didactic course comprised of lectures, case presentations and discussion focused on the use of endoscopic techniques for the management of a variety of neurosurgical lesions. The course will include high quality video examples of endoscopic surgery with emphasis on intraoperative technique.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe the advantages and disadvantages of endoscopy as it relates to neurosurgical procedures
- Explain the advantages and disadvantages of this minimally invasive approach
- List the procedures which can be performed with endoscopy
PRACTICAL CLINICS
8:00 AM–5:00 PM

002
Cranial Endoscopy: State-of-the-Art
Room 204A, Pennsylvania Convention Center

Director:
Alan R. Cohen, MD, FACS

Faculty:
Jacques Caemaert, MD, Prof
Michael R. Gaab, MD, PhD
J. Andre Grotenhuis, MD, PhD
Nakama Hayashi, MD, PhD
Carl B. Heilman, MD
Tenoch Herrada-Pineda, MD
Christian Matula, MD
Henry W. S. Schroeder, MD, PhD
Theodore H. Schwartz, MD
Laligam N. Sekhar, MD, FACS
Mark M. Souweidane, MD
John C. Wellons III, MD

Participants will receive didactic and hands-on instruction in intracranial endoscopy, including indications, techniques, outcomes and complications. Topics covered will include the management of hydrocephalus (including third ventriculostomy), removal of colloid cysts and other intraventricular tumors, endoscope-assisted microneurosurgery and transphenoidal procedures.

Clinic Fee: $1,500

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the indications for intracranial endoscopy
- Evaluate specific techniques available for intracranial endoscopy
- Discuss strategies for avoiding complications in intracranial endoscopy

INTERNATIONAL SYMPOSIA
1:00–5:00 PM

Room 109B, Pennsylvania Convention Center

No Fee

For this year’s International Day the AANS worked with the Sociedade Brasileira de Neurocirurgia. Their president, Luiz Carlos Alencastro, MD assisted the AANS Scientific Program committee in developing the program for this international symposium.

This symposium is comprised of lectures and discussion addressing the areas of skull base, spinal and neurovascular surgery and neuro-oncology. The presentations will provide a comprehensive update for each of these subspecialty areas.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Explain the current concepts in terms of evaluation and management of conditions involving the skull base, spine, vasculature and CNS neoplasms

1:00–2:00 PM
Skull Base

Tumors of the Foramen Magnum
Moderator:
Jose Alberto Landeiro, MD

Petrolival Meningiomas: A Management Challenge
Speaker:
Luis Alencar Borba, MD

Speaker:
Eduardo de Arnaldo Silva Vellutini, MD

Craniofacial Approaches to the Malignant Tumors of the Anterior Fossa
Speaker:
Antonio Aversa Dutra do Souto, MD

Transpetrosal Approach for Skull Base Tumors
Speaker:
Jair Raso, MD

Vestibular Schwannomas: Unusual Cases
Speaker:
Roberto Leal Silveira, MD

2:00–3:00 PM
Spine

Moderator:
Arnold H. Menezes, MD

Management of Cervical Spondylotic Myelopathy
Speaker:
Juan O.A. Adorno, MD

XLIF for Degenerative Scoliosis or ACDF and Arthroplasty
Speaker:
Luiz Henrique de Mattos Pimenta, MD, PhD

Surgical Anatomy of Lumbosacral Plexus
Speaker:
Roberto Martins, MD

Artificial Disc or Not
Speaker:
Miguel Guidicissi Filho, MD

3:00–4:00 PM
Cerebrovascular

Moderator:
Aaron S. Dumont, MD

Carotid Disease
Speaker:
Atos Alves De Sousa, MD

Management of Cerebral Vascular Malformations
Speaker:
Aaron S. Dumont, MD

Paraclinoid Aneurysms: A Critical Analysis of Contemporary Management
Speaker:
Jean Goncalves de Oliveira, MD, PhD
4:00–5:00 PM
Neuro-Oncology

Moderator:
Douglas W. Laske, MD

Posterior Fossa Meningiomas: A Systematic Approach
Speaker:
Paulo Henrique Aguiar, MD, PhD

Endoscopic Treatment of Intraparenchimal Lesions
Speaker:
Luiz Carlos de Alencastro, MD

Sulcal Anatomical Landmarks for the Radical Resections of Gliomas
Speaker:
Guilherme C. Ribas, MD

Complex Intracranial Meningiomas
Speaker:
Benedicto Oscar Colli, MD

This symposium is comprised of lectures and discussion addressing the areas of skull base, spinal and neurovascular surgery and neuro-oncology. The presentations will provide a comprehensive update for each of these subspecialty areas.

Learning Objectives:
After completing this educational activity, participants should be able to:

- Explain the current concepts in terms of evaluation and management of conditions involving the skull base, spine, vasculature and CNS neoplasms

PRACTICAL CLINICS
1:00–5:00 PM

003

Minimally Invasive Treatment of Trigeminal Neuralgia

Room 201A, Pennsylvania Convention Center

Co-directors:
Jeffrey Thomas Keller, PhD
John M. Tew Jr., MD

Faculty:
Khaleed M. Aziz, MD, PhD
Steven C. Bailey, MD
Kim J. Burchiel, MD, FACS
Joseph C. T. Chen, MD, PhD
Aaron A. Cohen-Gadol, MD
John Joseph DePowell, MD
Sebastian Froelich, MD
Andrew W. Grande, MD
Tonya Hines, BA
Glenn Lee Keiper, MD
Robert G. Kerr, MD, PhD
Michael J. Link, MD
George T. Mandybur, MD
Nancy A. McMahon, RN
Chad J. Morgan, MD
Troy D. Payner, MD
Philip V. Theodosopoulos, MD

This course will familiarize participants with the pathophysiology of trigeminal neuralgia and the entire breadth of treatment options, including percutaneous lesions, open surgical management, endoscopic approaches as well as radiosurgical treatment. The relevant anatomy will be extensively reviewed with an emphasis on key surgical points that maximize the effectiveness of treatment both in standard pathologic findings, as well as atypical presentations, recurrences after treatment and lesion related symptoms. A treatment algorithm will be presented and the nuances of treatment decision making will be extensively discussed.

Clinic Fee: $600

Learning Objectives:
After completing this educational activity, participants should be able to:

- Discuss the standard techniques for the treatment of trigeminal neuralgia
- Explain the decision making process regarding which treatment modality is “best” for the patient
- Discuss the current thoughts regarding the pathophysiology of trigeminal neuralgia
- Explain the diagnosis of trigeminal neuralgia versus atypical facial pain
- Discuss the issues related to recurrence of trigeminal neuralgia following treatment, as well as the subsequent treatment of these patients

004

3-D Anatomy and Approaches to the Supratentorial Area and Anterior Skull Base

Room 202B, Pennsylvania Convention Center

Director:
Albert L. Rhoton Jr., MD

This course will provide three-dimensional microsurgical instruction on routes through the anterior and posterior cerebrum and temporal lobe; anatomy and approaches to the lateral and third ventricles and pineal region; anterior skullbase and cavernous sinus; and transphenoidal, transmaxillary and transoral approaches.

Clinic Fee: $450
Free for Residents, Fellows and Medical Students

Learning Objectives:
After completing this educational activity, participants should be able to:

- Describe the routes to and through the anterior and posterior cerebrum and temporal lobe
- Discuss anatomy and approaches to the lateral and third ventricles and pineal region
- Discuss anterior and middle skull base including the orbit and cavernous sinus
- Discuss transphenoidal, transmaxillary and transoral approaches
EXHIBIT HOURS
6:30–8:00 PM
Exhibit Halls A&B, Pennsylvania Convention Center

REGISTRATION HOURS
6:30 AM–5:30 PM
Bridge Area, Pennsylvania Convention Center

COFFEE BREAKS
8:45–9:15 AM
1:45–2:15 PM
Across from Room 108AB and Outside Room 201A

PRACTICAL CLINICS
For attendees participating in an all day clinic or in a morning and afternoon clinic, lunch will be served in Rooms 103ABC, Pennsylvania Convention Center, from 11:00 AM–12:00 PM.

006 Decision Making and the Spine Patient for Nurses, APRNs and PAs
Room 113A, Pennsylvania Convention Center

Co-directors:
Dean Barone, PA-C, MPAS
Twyila Lay, NP, MS

Faculty:
Christopher J. Barry, MD
Steven Casha, MD, PhD
Joseph S. Cheng, MD, MS
Marc E. Eichler, MD
Marianne E. Langlois, PA-C
Alfred T. Ogden, MD
Nancy Eleanor Villanueva, ANP-C

This course will focus on specific decision making challenges that the nurse, APRN and PA face providing care for spine patients. Topics to be presented include an analysis of radiographic study indication and specifics of study indications; radiographic, as well as clinical evaluation of fusion; various injection types, indications, risks and available evidence; new technology including biologics, cervical disc arthroplasty and dynamic stabilization. Presentation of the implications of new technology to practice and appropriate patient selection for operative intervention will provide opportunity for in-depth discussion.

Clinic Fee: $570

Learning Objectives:
After completing this educational activity, participants should be able to:  
- Discuss problem based decision making and differential diagnosis in regards to the spine patient
- Discuss new technologies available including biologics, cervical disc arthroplasty and lumbar spinous process
- Analyze radiographic study indications, the specifics of interpretation and the clinical, as well as radiographic evaluation of fusion
- Analyze the various injection types, associated risks and indications, as well as the available evidence on injection efficacy
- Discuss new technology and the implications for practice, as well as decision making for selecting the right surgery for the right patient

007 Deep Brain Stimulation: Update and New Directions
Room 201A, Pennsylvania Convention Center

Co-directors:
Robert G. Grossman, MD
Stephen B. Tatter, MD, PhD

Faculty:
Aviva Abosch, MD, PhD
Ron L. Alterman, MD
Jeffrey E. Arle, MD, PhD
Roy A. E. Bakay, MD
Nicholas M. Boulis, MD
Patrick J. Connolly, MD
Brian H. Kopell, MD
Alon Y. Mogilner, MD, PhD
Michael Y. Oh, MD
Joshua M. Rosenow, MD
Ashwini D. Sharan, MD
Philip A. Starr, MD, PhD

Practical aspects of surgery for the treatment of Parkinson’s disease, tremor and dystonia will be presented via lectures, videos, case presentations and device demonstrations. Emphasis will be on anatomical and physiological targeting strategies, intraoperative decision making, troubleshooting, complication avoidance and management. Cases and intraoperative scenarios will be presented for interactive discussion with the audience and faculty.

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:  
- Evaluate patients for surgery for Parkinson’s disease, tremor and dystonia
- Apply the principles and techniques of DBS and lesioning surgeries
- Identify anatomical and physiological localization of the STN, Gpi and thalamus
- Discuss emerging indications for DBS such as medically-refractory obsessive compulsive disorder

008 Spinal Radiosurgery
Room 203AB, Pennsylvania Convention Center

Co-directors:
Mark H. Bilsky, MD
Peter C. Gerszten, MD, MPH

Faculty:
Lilyana Angelov, MD, FRCSC
Steven D. Chang, MD
Jason P. Sheehan, MD, PhD
Kevin C. Yao, MD
Current state-of-the-art techniques in image guided surgery of the spine will be reviewed. Emphasis will be placed on the current indications for and preliminary outcomes after radiosurgical ablation of benign and malignant spinal lesions.

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the most commonly used techniques for spine radiosurgery
- Explain the current indications for and outcomes after spine radiosurgery
- Explain the relative contraindications to spine radiosurgery

009
Transfacet Technology: An Alternative to Pedicle Screw Fixation with Interbody Techniques

Room 108A, Pennsylvania Convention Center

Co-directors:
Randy O. Kritzer, MD
Brian R. Subach, MD, FACS

Faculty:
Edward C. Benzel, MD
Larry T. Khoo, MD
Kenneth I. Renkens, MD

Both the biomechanical properties and clinical applications of transfacet screw technology will be discussed as it relates to ALIF, TLIF and PLIF procedures. During the hands-on portion, participants will be able to do sawbone trials of all the techniques discussed.

Clinic Fee: $750

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the biomechanical properties of transfacet screws as compared to pedicle screw constructs
- Discuss clinical applications so that surgeons will be aware of indications
- Discuss the techniques presented
- Apply the techniques into their physician practices

010
Brain Mapping Techniques in Adult and Pediatric Neoplasms and Epilepsy

Room 107AB, Pennsylvania Convention Center

Co-directors:
Gerald A. Grant, MD
Guy M. McKhann II, MD

Faculty:
Nicholas M. Barbaro, MD
Gene H. Barnett, MD, FACS
Mitchel S. Berger, MD, FACS
William E. Bingaman Jr., MD
Peter M. Black, MD, PhD
Isabelle M. Germano, MD, FACS

This clinic will provide an in-depth review of techniques and technologies that can be applied to identifying and working within eloquent areas of the brain and performing successful resections of neoplasms, epilepsy foci. The selection of surgical approaches based on non-invasive monitoring for surgery of epilepsies and brain tumors will be discussed.

Clinic Fee: $570

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss HIPAA and how it applies to their practice
- Discuss what actions place them at risk for a lawsuit and how to avoid them
- Explain proper coding for the most common operations
- Discuss the components of a successful office practice
- Explain how to evaluate a job opportunity

011
Choosing and Developing a Neurosurgical Practice

Room 113C, Pennsylvania Convention Center

Co-directors:
Edward Robert Smith, MD
G. Edward Vates, MD, PhD

Faculty:
Joshua J. Beardsley, PA-C
Lawrence S. Chin, MD, FACS
William T. Couldwell, MD, PhD
J. Nozipo Maraire, MD
Gregory J. Zipfel, MD

This course will cover the basics of starting a neurosurgery practice upon finishing a residency. Topics will include office management, billing and coding, medical pitfalls, government regulations and building a practice.

Clinic Fee: $450
Free for Residents, Fellows and Medical Students

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the technologies currently available for pre- and intra-operative brain mapping for tumors and epilepsy
- Apply brain mapping techniques to daily practice
- Recognize complication avoidance in epilepsy and brain mapping techniques

012
3-D Anatomy and Approaches to the Posterior Fossa and Posterior Skull Base

Room 202B, Pennsylvania Convention Center

Director:
Albert L. Rhoton Jr., MD

This course will provide three-dimensional microsurgical instruction on anatomy and approaches through the temporal bone; cerebellum and fourth ventricle; far lateral and transcondylar approaches; approaches to the cerebellopontine angle; and anatomy and approaches to the jugular foramen.
SUNDAY, MAY 2

Clinic Fee: $450
Free for Residents, Fellows and Medical Students

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss anatomy and approaches through the temporal bone
- Discuss approaches to the cerebellum and fourth ventricle
- Discuss far lateral and transcondylar approaches
- Discuss approaches to the cerebellopontine angle
- Discuss anatomy and approaches to the jugular foramen

013
Peripheral Nerve Injuries, Entrapments and Tumors: Examination and Evaluation
Room 113B, Pennsylvania Convention Center

Co-directors:
Line Jacques, MD
Robert J. Spinner, MD, FACS

Faculty:
Allan H. Friedman, MD, FACS
Holly S. Gilmer, MD
Allen H. Maniker, MD
John E. McGillicuddy, MD

This clinic will provide an overview of the neurosurgeon’s approach to patients with peripheral nerve injuries, entrapments and tumors.

Clinic Fee: $450
Free for Residents, Fellows and Medical Students

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss indications for, the timing of and types of operative intervention on peripheral nerve injuries
- Discuss patho-anatomy, clinical presentation and management of common entrapments in the upper and lower limbs
- Explain the indications for and approaches to operative interventions on different types of benign and malignant peripheral nerve tumors
- Explain the role of preoperative and intraoperative electrophysiology in the management of patients with these common peripheral nerve lesions

014
Evaluation and Management of Degenerative Deformity in the Lumbar Spine
Room 111AB, Pennsylvania Convention Center

Director:
Daniel K. Resnick, MD

Faculty:
Andrew T. Dailey, MD
Amgad Saddik Hanna, MD
J. Patrick Johnson, MD
Praveen V. Munmaneni, MD
Eric J. Woodard, MD

This is a practical clinic where issues related to the neurosurgical management of scoliosis will be reviewed.

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:
- Explain the basic concepts and techniques that are relevant to the surgical treatment of scoliosis
- Discuss treatment options for scoliosis

018
Coding, Compliance and Revenue Issues in Spine Coding
Room 109A, Pennsylvania Convention Center

Director:
Joseph S. Cheng, MD, MS

Faculty:
R. Patrick Jacob, MD, FACS
Robert R. Johnson II, MD, FACS
Kim Pollock, RN, MBA
John Kevin Ratliff, MD, FACS
John A. Wilson, MD, FACS

This course will cover spine surgery CPT codes and case examples from the simple to the very complex. Minimally invasive and innovative spine surgery techniques and how to code new technology will be discussed in detail. Learn how to code accurately for surgical procedures such as cross spinal regions and those where an approach surgeon is used. We will show you how to easily determine which code you would bill even though the code descriptions are often confusing.

Are you using the spine surgery coding five-step methodology to ensure you are capturing all revenue and RVUs due to you? When can you separately bill a spinal dura repair? How about use of the operating microscope? Lumbar drain? Stereotactic navigation or intraoperative fluoroscopy? Intraoperative monitoring?

Clinic Fee: $450

Learning Objectives:
After completing this educational activity, participants should be able to:
- Review the CPT and coding changes for 2010
- Describe how CPT coding affects the neurosurgeon’s revenue and compliance with current rules
- Explain the differences in charges and revenue for a primary surgeon, co-surgeon, or assistant surgeon and what the documentation requirements are
- Discuss documentation issues in an operative report to support all the codes billed and appeal payor denials

029
Developing Philanthropic Opportunities to Support Community Based and Academic Program
Room 112A, Pennsylvania Convention Center
With the current economics of health care, leading neurosurgeons from community practices, group practices and academics have recognized the value of philanthropy as the lowest overhead source of needed revenue to fund patient care programs, research and faculty salaries. Experts from around the nation will come together for the first time to show the successful and ethical ways they have raised money to help balance the bottom line for their practices and programs.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Develop new program revenue sources through philanthropy
- Describe structuring directed gifts for neurosurgery
- Identify new opportunities for research funding
- Discuss strategies for ethical corporate donations
- Discuss how to motivate individuals to participate as donors

**017 Current Surgical Techniques and Approaches to MIS Spine Surgery**
Room 204C, Pennsylvania Convention Center

**Co-directors:**
Richard G. Fessler, MD, PhD
Daniel H. Kim, MD, FACS

**Faculty:**
Sean D. Christie, MD
Kurt M. Eichholz, MD
Anthony K. Frempong-Boadu, MD
Vishal C. Gala, MD, MPH
Robert F. Heary, MD
Robert E. Isaacs, MD
John C. Liu, MD
John E. O’Toole, MD

This clinic will review traditional transsphenoidal approaches and present contemporary modifications of the technique, including endoscopic approaches. This clinic will also update the neurosurgeon on current medical and radiosurgical adjuncts to transsphenoidal surgery.

**Clinic Fee:** $1,500

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe the transsphenoidal approach and contemporary modification
- Cite the advantages of the endonasal, endoscopic technique
- Outline current approaches to transsphenoidal surgery
- Evaluate adjunctive therapies for patients with pituitary tumors

**020 Head and Spine Trauma: Current Treatments and Controversies with Hands-On Practical Session in Brain Monitoring and Techniques**
Room 104AB, Pennsylvania Convention Center

**Co-directors:**
Geoffrey T. Manley, MD, PhD
Shelly D. Timmons, MD, PhD

**Faculty:**
Julian E. Bailes Jr., MD
M. Ross Bullock, MD, PhD
Robert C. Cantu, MD, FACS
William M. Coplin, MD
Raj K. Narayan, MD
This clinic emphasizes case studies and covers the significant breadth of the field of neurotrauma and critical care. It will be directed by a private practice neurosurgeon, with emphasis on practical, as well as complex case management issues. In the afternoon session you will have hands-on instruction in techniques and devices for ICP monitoring, Parenchymal 02 monitoring and decompressive craniectomy.

**Clinic Fee:** $570

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe the ICU management of the TBI patient
- Describe the current surgical controversies in the management of the brain-injured patient
- Identify the current concepts in dealing with brain-injured athletes
- Discuss management challenges of mild traumatic brain injury and concussion
- Recognize the role of the neurosurgeon in a trauma center and trauma systems

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**PRACTICAL CLINICS**

**12:00–4:00 PM**

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**R,F&MS**

**Spinal Stabilization, Fusion and Instrumentations: Biomechanics and Techniques**

Room 107AB, Pennsylvania Convention Center

**Co-directors:**
Peter Douglas Angevine, MD, MPH
Kaushik Das, MD

**Faculty:**
Charles L. Branch Jr., MD
Virany H. Hillard, MD
Langston T. Holly, MD
Tyler Robert Koski, MD
Eric W. Nottmeier, MD

Naresh P. Patel, MD
Nicholas Theodore, MD

This course will describe the biological and biomechanical principles of spinal fusion. Through the use of didactic sessions and hands-on application, it will also describe the indications, operative approaches and surgical techniques used in spinal fusion and instrumentation of the cervical and thoracolumbar spine.

**Clinic Fee:** $450

**Free for Residents, Fellows and Medical Students**

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe biologic basis and biomechanics of spine fusion
- Describe indications of spinal fusion, instrumentation and arthroplasty
- Describe operative approaches and surgical techniques for spinal fusion and instrumentation

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**R,F&MS**

**Update on Malignant Brain Tumors for the General Neurosurgeon**

Room 113C, Pennsylvania Convention Center

**Co-directors:**
Andrew T. Parsa, MD, PhD
Michael William Weaver, MD

**Faculty:**
Manish K. Aghi, MD
Anthony L. Asher, MD, FACS
Richard W. Byrne, MD
Alexandra J. Golby, MD
John G. Golfinos, MD
Amy B. Heimberger, MD
Frederick F. Lang Jr., MD
Linda M. Liau, MD, PhD
Russell R. Lonser, MD
John H. Sampson, MD, PhD

This clinic will provide the practicing clinician with an up-to-date overview of current management strategies for all types of benign and malignant brain tumors. This seminar includes current research topics but emphasizes practical management issues.

**Clinic Fee:** $570

**Free for Residents, Fellows and Medical Students**

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Identify the state-of-the-art management of malignant brain tumors including glial tumors, meningiomas, and skull base tumors
- Discuss current concepts in glioma management
- Apply current updates about brain tumors to daily clinical practice decision making

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**021**

**Cranial Radiosurgery**

Room 203AB, Pennsylvania Convention Center

**Director:**
Antonio A. F. De Salles, MD, PhD

**Faculty:**
Steven D. Chang, MD
William A. Friedman, MD, FACS
Alessandra Augusta Gorgulho, MD
Michael J. Link, MD
Ajay Niranjan, MD

This clinic will illustrate various radiosurgery methods currently available.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Explain basic aspects of radiosurgery planning
- Discuss radiosurgery applications for brain and spinal tumors and AVMs
- Discuss indications of radiosurgery for functional disease of the brain
- Explain differences among the various radiosurgery techniques available
- Apply a radiosurgery plan
<table>
<thead>
<tr>
<th>022</th>
<th>Cranio-Cervical: Stabilization Techniques, Surgical Approaches and Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 108A, Pennsylvania Convention Center</td>
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<tr>
<td><strong>Director:</strong></td>
<td>Arnold H. Menezes, MD</td>
</tr>
<tr>
<td><strong>Faculty:</strong></td>
<td>Richard C. E. Anderson, MD, Marc E. Eichler, MD, Noel I. Perin, MD, FRCS, Rick C. Sasso, MD, Paul D. Sawin, MD, Vincent C. Traynelis, MD</td>
</tr>
<tr>
<td>This clinic will include the evaluation of craniocervical anatomy and pathology. Formulation of a treatment for disorders and construction of physiological modes of therapy will be reviewed. The didactic program will be followed by hands-on demonstration.</td>
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<tr>
<td><strong>Clinic Fee:</strong></td>
<td>$660</td>
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<td><strong>Learning Objectives:</strong></td>
<td>After completing this educational activity, participants should be able to:</td>
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<tr>
<td>4</td>
<td>Formulate craniovertebral junction surgical approaches</td>
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<td>4</td>
<td>Classify and differentiate craniocervical lesions</td>
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<tr>
<td>4</td>
<td>Identify and treat fusions</td>
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<thead>
<tr>
<th>023</th>
<th>Thoracic and Lumbar Stabilization and Fusion: Indications and Complications</th>
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<tbody>
<tr>
<td>Room 201A, Pennsylvania Convention Center</td>
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<tr>
<td><strong>Co-directors:</strong></td>
<td>Regis W. Haid Jr., MD, Christopher I. Shaffrey, MD</td>
</tr>
<tr>
<td><strong>Faculty:</strong></td>
<td>Paul M. Arnold, MD, FACS, Sumon Bhattacharjee, MD, Dean Chou, MD, Harel Deutsch, MD, R. Patrick Jacob, MD, FACS, Adam S. Kanter, MD</td>
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<tr>
<td>This clinic is designed to teach attendees the basics of vertebrobasilar, internal carotid, middle cerebral and anterior cerebral artery aneurysms.</td>
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<td><strong>Clinic Fee:</strong></td>
<td>$450</td>
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<td><strong>Learning Objectives:</strong></td>
<td>After completing this educational activity, participants should be able to:</td>
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<tr>
<td>4</td>
<td>Recognize the special features of aneurysms at specific sites</td>
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<tr>
<td>4</td>
<td>Recognize potential pitfalls for safe lesion treatment</td>
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<td>4</td>
<td>Identify new methods of intervention for cerebral aneurysms</td>
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<thead>
<tr>
<th>024</th>
<th>Microsurgical Management of Intracranial Aneurysms: Site Specific Surgical Anatomy, Operation Intervention and Complication Management</th>
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<tbody>
<tr>
<td>Room 108B, Pennsylvania Convention Center</td>
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<tr>
<td><strong>Director:</strong></td>
<td>Arthur L. Day, MD, FACS</td>
</tr>
<tr>
<td><strong>Faculty:</strong></td>
<td>Charles Kuntz IV, MD, Frank La Marca, MD, Paul Park, MD, Mark Andrew Pichelmann, MD, Laurence D. Rhines, MD, Gregory R. Trott, MD, Michael Y. Wang, MD</td>
</tr>
<tr>
<td>A series of didactic lectures and hands-on in thoracic and lumbar fusion techniques and technology. Discussion will include treatment of degenerative disease and spinal deformity in the thoracolumbar spine. The impact of implant design, technique selection (including minimally invasive approaches) and biological agents will be discussed.</td>
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<td>4</td>
<td>Identify and treat fusions</td>
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<tr>
<th>025</th>
<th>Interventional Neurovascular Disease: Avoidance and Management Complication</th>
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<tr>
<td>Room 113B, Pennsylvania Convention Center</td>
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<tr>
<td><strong>Co-directors:</strong></td>
<td>Brian L. Hoh, MD, Charles Joseph Prestigiacomo, MD, FACS</td>
</tr>
<tr>
<td><strong>Faculty:</strong></td>
<td>Felipe C. Albuquerque, MD, Rocco A. Armonda, MD, C. Michael Cawley, MD, FACS, Peng Roc Chen, MD, B. Gregory Thompson Jr., MD</td>
</tr>
<tr>
<td>A comprehensive discussion of complications and complication avoidance in the endovascular management of cerebral aneurysms, AVMs/AVFs, spinal AVMs, tumor and special problems associated and encountered with treatment in the endovascular site.</td>
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<td><strong>Clinic Fee:</strong></td>
<td>$450</td>
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<td><strong>Learning Objectives:</strong></td>
<td>After completing this educational activity, participants should be able to:</td>
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<tr>
<td>4</td>
<td>Evaluate and apply strategies when endovascular complications occur</td>
</tr>
</tbody>
</table>
| 4 | Discuss the treatment of intracranial aneurysms, AVMs, occlusive
cerebrovascular disease and tumors

- Apply these procedures to avoid complications and effectively manage the complications
- Identify problems which are peculiar to treatments in the endovascular suite

026

**Dynamic Treatments of Degenerative Lumbar Disc Disease**

Room 111AB, Pennsylvania Convention Center

*Co-directors:*
Andrew T. Dailey, MD
Russ P. Nockels, MD

*Faculty:*
Domagoj Coric, MD
Martin D. Herman, MD, PhD
Najeeb M. Thomas, MD
William C. Welch, MD, FACS

A series of didactic lectures and hands-on instructions will illustrate the state-of-the-art in lumbar interbody fusion techniques and technology. The impact of implant design and biological agents on interbody outcomes will be discussed.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Compare the various surgical approaches used for lumbar dynamic stabilization
- Evaluate lumbar dynamic devices and assess the value of emerging technology
- Discuss the role of dynamic posterior stabilization in conjunction with lumbar fusion
- Assess the role of outcome measures in future design of spinal implants

027

**Negotiating with Hospitals: Challenging the Experts**

Room 112A, Pennsylvania Convention Center

*Director:*
E. Hunter Dyer, MD

*Faculty:*
Kim J. Burchiel, MD, FACS
M. Sean Grady, MD

Providing optimal patient care requires neurosurgeons to be available and accessible within the current health care environment. This course will provide case studies of both success and failure from neurosurgeons that negotiated with hospitals. Building on the didactic information presented in previous years, the course will allow participants to gain important insight into how and why strategies succeeded or failed for these experienced neurosurgeons. Each case study evaluates approaches to ensure a neurosurgical career satisfaction, financial stability, expansion of practice opportunities and availability for patient care. Special attention is paid to the interwoven financial relationships between hospitals and neurosurgeons and how best to leverage a neurosurgeon’s value to his/her hospital in negotiating resources. All course participants will be requested to submit their own hospital negotiation case studies for didactic discussion during the second part of the highly interactive and results oriented portion of the course.

**Clinic Fee:** $450

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Assess the direct and indirect financial contribution neurosurgeons make to a hospital and explain administrative “financial-speak” essential to successful negotiations
- Define alternative revenue sources for neurosurgeons in your hospital and community
- Determine practical approaches for solving current dilemmas in neurosurgeon-hospital relationships

028

**Neurotrauma Critical Care Review and Update for the Practicing Neurosurgeon**

Room 113A, Pennsylvania Convention Center

*Co-directors:*
Craig H. Rabb, MD, FACS
Patricia B. Raksin, MD

*Faculty:*
Ahmed E. Badr, MD
Perry A. Ball, MD, FACS
Kathryn Marie Beauchamp, MD
Kevin J. Gibbons, MD, FACS
David O. Okonkwo, MD, PhD
Roland A. Torres, MD
Philip Andrew Villanueva, MD

This course is designed for the practicing neurosurgeon, to provide a refresher and update on critical care of the neurosurgical trauma patient in the ICU. The primary focus of this course in the area of non-neuro critical care, including ventilator management, fluids, nutrition, infectious disease, sedation issues, and DVT prevention.

**Clinic Fee:** $450

**Free for Residents, Fellows and Medical Students**

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Describe contemporary ventilator management, lung-protective strategies, and prone ventilation
- Discuss types of nutrition and impact of timing of nutrition in the head-injured patient
- Describe types and methods of fluid resuscitation and management in the trauma patient with head injury
- Describe contemporary diagnosis and management; a broad spectrum of medical issues, including infectious disease, endocrine problems, renal function and “never” events
This half day course will provide exposure for medical students to the breadth and depth of neurosurgical clinical practice and neurosurgical research including the opportunity for hands-on experience with innovative neurosurgical tools such as computer-assisted surgery, artificial disc replacement, endoscopy, and endovascular applications. Real clinical scenarios will also be presented to gain understanding of how neurosurgery makes a difference for our patients. In addition, the course will detail the spectrum that represents “A Neurosurgeon’s Life” and how this allows synergy with a wide spectrum of lifestyle choices.

**Clinic Fee:** $450

**Free for Residents, Fellows and Medical Students**

**Learning Objectives:**
After completing this educational activity, participants should be able to:

- Explain the depth and breadth of current and future neurosurgical practice
- Discuss the synergy between neurosurgery practice and a spectrum of lifestyle choices
- Explain the significant value of neurosurgical research
- Realize the opportunities for continued exposure to and participation in neuroscience activities, neurosurgery research, and neurosurgical clinical practice

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**Coding, Compliance and Revenue Issues in Cranial, Non-Spine and E&M Coding**

**Room 109A, Pennsylvania Convention Center**

**Director:** Joseph S. Cheng, MD, MS

**Faculty:**
- R. Patrick Jacob, MD, FACS
- Robert R. Johnson II, MD, FACS
- Kim Pollock, RN, MBA
- John Kevin Ratliff, MD, FACS
- Graeme Woodworth, MD

This course will cover the most common aspects of cranial procedure coding such as brain tumor, acoustic neuroma, aneurysm, skull base tumors, traumatic brain injuries including hematomas and decompressive procedures and skull base surgery. Learn how to code for innovative cranial procedures such as endoscopic skull base surgery.

The new stereotactic radiosurgery codes allow separate billing for the head frame and easy billing for treating more than one lesion - are you using the codes correctly to capture all revenue?


Ventriculoperitoneal shunt coding got you confused? We will show you a simple way to keep it all straight.

The RAC and CERT audits are here - will you pass? We will help you understand the elements of E&M coding and when it is appropriate to bill for a “pre-op visit”.

**Clinic Fee:** $450

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**AANS OPENING RECEPTION**

6:30–8:00 PM

Exhibit Halls A and B, Pennsylvania Convention Center

Be sure to make plans to attend the social event of the week, the Opening Reception! With the Opening Reception being held in the Exhibit Hall, you will be able to socialize with friends and colleagues, as well as meet with AANS exhibiting companies to learn more about products and services they offer.

You will be led on a journey back to the American Revolution era, feasting on popular food items of the time. Who knows, you may even run into Ben Franklin or Betsy Ross!

Don’t miss the opportunity to hear some of our own. NJQ “Neurosurgical Jazz Quintet” featuring Donald O. Quest, MD, James E. Rose, MD, Theodore H. Schwartz, MD, R. Michael Scott, MD and Phillip R. Weinstein, MD, will again entertain us during the party.

One ticket to the Opening Reception is included with each medical attendee and spouse/guest registration. A special area will be available for children.

Motor coaches will shuttle between the...
Pennsylvania Convention Center and the Crowne Plaza Philadelphia Downtown, Doubletree Hotel Philadelphia, Embassy Suites Philadelphia Center City, Four Seasons Hotel Philadelphia and Ritz Carlton between 6:15 – 8:15 PM. All other hotels are within walking distance of the Convention Center.
REGISTRATION HOURS
6:30 AM–4:00 PM
Bridge Area, Pennsylvania Convention Center

EXHIBIT HOURS
9:00 AM–4:00 PM
Exhibit Halls A&B, Pennsylvania Convention Center

BEVERAGE BREAKS IN EXHIBIT HALL
9:00–9:45 AM
2:45–3:30 PM

LUNCH BREAK
1:15–2:00 PM

BREAKFAST SEMINARS
7:30–9:30 AM
Fee: $100 each, includes breakfast

BREAKFAST FOR SEMINAR PARTICIPANTS
6:45–7:30 AM
Located in Room 103ABC, Pennsylvania Convention Center

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the indications for operative treatment, radiation treatment, drug treatment and observation
- Apply technical details of acoustic tumor surgery
- Discuss how to avoid complications and study the outcome of surgery, radiation treatment and observation

101
How I Do It: Acoustic Tumors
Room 201C, Pennsylvania Convention Center
Moderator:
Frederick G. Barker II, MD, FACS

Panelists:
Jason A. Heth, MD
Daniel R. Pieper, MD
Bruce E. Pollock, MD
Kalmon D. Post, MD
Marc S. Schwartz, MD

The principles of selecting suitable approaches, techniques and tactics of multimodality treatment of acoustic neuromas will be described.

Minimally Invasive Spinal Neurosurgery: Indications, Techniques and Complications
Room 108A, Pennsylvania Convention Center
Moderator:
Kevin T. Foley, MD
Panelists:
Christopher J. Barry, MD
Domagoj Coric, MD
Kurt M. Eichholz, MD
Langston T. Holly, MD
Paul Santiago, MD

This seminar will focus on endoscopic and minimally invasive techniques for cervical, thoracic and lumbar spine surgery. Techniques for decompression and fusion will be discussed.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe various endoscopic and minimally invasive techniques for spinal surgery
- Discuss the indications, results and potential complications for these techniques

103
Lumbar Spine Fusion
Room 111AB, Pennsylvania Convention Center
Moderator:
Joan Frances O’Shea, MD

Panelists:
Andrew T. Dailey, MD
Eric M. Massicotte, MD, MSc
Russ P. Nockels, MD
Daniel K. Resnick, MD

Free for Residents, Fellows and Medical Students

This seminar describes and discusses the issues of patient selection, surgical indication and surgical techniques as they pertain to lumbar fusion. A global approach will be provided.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the fundamentals of the surgical decision making process
- Discuss factors involved with patient selection for lumbar spine fusion
- Distinguish between the surgical strategies for lumbar spine fusion and their relative indications, as well as their pros and cons

104
History of Spinal Surgery Instrumentation Technology
Room 109A, Pennsylvania Convention Center
Moderator:
Mark C. Preul, MD
Panelists:
Charles Joseph Prestigiacomo, MD, FACS
Volker K. H. Sonntag, MD

Participants will receive information about the history of different types of spinal surgery.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss a broad overview of the history of spinal surgery
105
Cavernous Malformations: Current Controversies in Management
Room 108B, Pennsylvania Convention Center
Moderator:
Murat Gunel, MD
Panelists:
Issam A. Awad, MD
R. Michael Scott, MD
Robert F. Spetzler, MD
This seminar will use didactic and case based discussion to explain the clinical diagnosis and management of patients with intracranial cavernous malformations.
Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss the presentation, diagnosis and natural history of intracranial cavernous malformations
• Review the expectant, surgical and radiosurgical treatment options for patients with cavernous malformations
• Review familiar cavernous malformation syndromes

106
Functional Mapping of the Cerebral Cortex: Advantages and Limitations
Room 202AB, Pennsylvania Convention Center
Moderator:
Richard W. Byrne, MD
Panelists:
Gerhard M. Friehs, MD
P. Charles Garell, MD
Isabelle M. Germano, MD, FACS
Hiroti Kawasaki, MD
Daniel L. Silbergeld, MD
All aspects and methods of functional mapping for neurosurgery will be discussed including removal of brain tumors, vascular lesions and epilepsy for awake and asleep patients.

107
Chiari Malformations: Diagnosis Treatments and Failures
Room 105AB, Pennsylvania Convention Center
Moderator:
Edward H. Oldfield, MD
Panelists:
Ulrich Batzdorf, MD
Bermans J. Iskandar, MD
Arnold H. Menezes, MD
Karin M. Muraszko, MD
This seminar will focus on the pathophysiology of Chiari malformations, the indications for treatment, therapeutic options and the basis of their success and failure.
Learning Objectives:
After completing this educational activity, participants should be able to:
• Describe the current concepts of the pathophysiology of Chiari malformations
• Recognize the indications for treatment of Chiari malformations
• Discuss the options for treatment of Chiari malformations

108
Update on Lumbar Stenosis
Room 104B, Pennsylvania Convention Center
Moderator:
Robert E. Isaacs, MD
Panelists:
David W. Beck, MD
Christopher H. Comey, MD
William Bradford DeLong, MD
Carl Laurysen, MD
Claudio Thome, MD
This seminar will evaluate short term and long term outcomes of both surgical and nonsurgical treatment of lumbar stenosis. It will also evaluate recently developed minimal access treatments for stenosis.
Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss the natural history of spinal stenosis
• Explain the data underlying non-operative therapies for spinal stenosis
• Explain the data underlying conventional operative therapies for spinal stenosis
• Explain the data underlying the newer and less conventional operative therapies for spinal stenosis

109
Controversies in the Management of Intracerebral Hematomas
Room 203AB, Pennsylvania Convention Center
Moderator:
Neil D. Kitchen, MD, FRCS
Panelists:
H. Hunt Batjer, MD, FACS
Jonathan A. Friedman, MD
Alexander David Mendelow, FRCS, PhD
David W. Newell, MD
Yong-Kwang Tu, MD
The pathophysiology of spontaneous intracerebral hemorrhage will be described, as well as current treatment options. Recent ongoing clinical trials for treatment of ICH patients will be discussed.
Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss the management of intracerebral hemorrhage according to current clinical evidence
• Discuss rationale for current clinical studies
• Discuss evidence based medicine in the management of a patient with intracerebral hemorrhage

110

Advances in Carotid Disease: Surgery vs. Endovascular Therapy

Room 204AB, Pennsylvania Convention Center

Moderator:
Robert E. Harbaugh, MD, FACS

Panelists:
Felipe C. Albuquerque, MD
William H. Brooks, MD
Sean D. Lavine, MD
Christopher M. Loftus, MD, FACS
John A. Wilson, MD, FACS

Free for Residents, Fellows and Medical Students

This seminar will explore the risk/benefit ratio for high-risk carotid surgery.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss optimal management of prolactinomas
• Describe approach advances in and extensions of transphenoidal surgery
• Construct appropriate adjunctive treatment algorithms for patients

112

Biologics for the Spine

Room 113B, Pennsylvania Convention Center

Moderator:
James S. Harrop, MD

Panelists:
Robert S. Bray Jr., MD
Allan D. Levi, MD, PhD
Stephen I. Ryu, MD

This seminar will focus on novel cutting edge strategies for spine stabilization, specifically focusing on bone graft extenders and substitutes, absorbable implants, and biological adjuncts for fusion.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss the use of electrical stimulation for promotion of fusion
• Describe the current use of absorbable and non-absorbable polymers for spinal stabilization
• Discuss the current use of BMP for spinal arthrodesis
• Discuss current and future use of biologics in treatments for spinal cord injury

113

Management of Spinal Axis Trauma

Room 201AB, Pennsylvania Convention Center

Moderator:
Gregory R. Trost, MD

Panelists:
Bizhan Aarabi, MD, FACS
J. Bradley Bellotte, MD
Steven Casha, MD, PhD
Sean M. Lew, MD
Nicholas Theodore, MD

A variety of commonly encountered spine injuries/fractures will be discussed. The controversies and rationale for treatment strategies will be reviewed.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Discuss the pertinent issues and alternatives
• Review rationale for various spine trauma treatments

114

Intracranial Endoscopy

Room 113C, Pennsylvania Convention Center

Moderator:
Alan R. Cohen, MD, FACS

Panelists:
Jacques Caemaert, MD, Prof
James M. Drake, MD
David F. Jimenez, MD, FACS
Jody Leonardo, MD
Henry W. S. Schroeder, MD, PhD

This seminar focuses on the state-of-the-art of intracranial endoscopic neurosurgery, including ventriculoscopic surgery, endoscope-assisted microsurgery, endoscopic transnasal surgery and endoscope-assisted craniosynostosis surgery.
**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Review the current state of intracranial endoscopy
- Explain the endoscopic treatment of hydrocephalus, cysts and tumors
- Describe the indications for endoscopic transnasal and skull base surgery
- Evaluate the efficacy of endoscope-assisted craniosynostosis surgery
- Discuss complications and strategies for complication avoidance

**115**
**Malignant Brain Tumors: State-of-the-Art Treatment**
Room 109B, Pennsylvania Convention Center

*Moderator:*
Joseph M. Piepmeier, MD

*Panelists:*
Ennio Antonio Chiocca, MD, PhD
Francesco DiMeco, MD
Linda M. Liau, MD, PhD
Andrew T. Parsa, MD, PhD
Timothy C. Ryken, MD

This seminar will discuss new advances in the management of malignant gliomas including gene therapy, convection enhanced drug and immunotherapy. These advances will be discussed in the context of tumors managed by the neurosurgeon.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Examine innovative techniques for surgery
- Review the tumor biology with gene and vaccine therapy
- Examine the role of stem cells in gliomas

**116**
**Improving Your Bottom Line**
Room 204C, Pennsylvania Convention Center

*Moderator:*
James I. Ausman, MD, PhD

*Panelists:*
David J. Boarini, MD
Gregory B. Lamford, MD
Troy D. Payner, MD
Khalid A. Sethi, MD
Christopher B. Shields, MD, FRCSC
Richard N. Wohns, MD

This seminar will survey the solutions neurosurgeons have made to the constrictive economic environment using practicing neurosurgeons as faculty. Successful examples will cover the small practice to the academic center. This seminar encourages audience participation. It will cover options ranging from entrepreneurial to employment.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Examine techniques employed by managing partners of large neurosurgical practices to reduce overhead
- Discuss ways to manage personnel and develop innovative ways to increase the bottom line and run a more productive practice
- Discuss forces shaping healthcare
- Explain how to grow a practice in today’s and tomorrow’s healthcare environment

**117**
**Spinal Motion Preservation-The Posterior Column Implants**
Room 107AB, Pennsylvania Convention Center

*Moderator:*
M. Samy Abdou, MD

*Panelists:*
Arya Nick Shamie, MD
Phillip A. Tibbs, MD
William C. Welch, MD, FACS

A wide range of treatment strategies and implantable devices are being developed to treat facet disease, spinal stenosis and other manifestations of posterior column disease without fusion. The implantable devices include X-Stop, Dynasis, TOPS and others. The results of the most recent clinical trials will be presented by investigators involved in these studies.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Discuss the normal anatomy of the posterior spinal column, as well as the pathophysiology of degenerative disease
- Discuss the biomechanical basis of non fusion technology
- Explain the design features of both pedicle screw-based and inter-spinous process implants
- Compare and contrast the differing treatment strategies
- Discuss the relevant clinical results of pedicle screw-based stabilization devices and of inter-spinous process implants

**118**
**Getting the Most Out of Your Residency**
Room 113A, Pennsylvania Convention Center

*Moderator:*
Lawrence S. Chin, MD, FACS

*Panelists:*
Howard M. Eisenberg, MD
Richard G. Ellenbogen, MD, FACS
Jayant Jagannathan, MD
N. Scott Litofsky, MD
Craig H. Rabb, MD, FACS

Free for Residents, Fellows and Medical Students

This seminar will help medical students and beginning residents maximize their experience during residency.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Explain the residency application process
- Review ways to maximize residency
for professional development

- Explain how to balance professional and personal development
- Develop strategies to maximize financial success during residency
- Discuss the future of neurosurgery

119

Vertebroplasty and Kyphoplasty: Indications, Controversies and Credentialing

Room 104A, Pennsylvania Convention Center

**Moderator:**
Mick J. Perez-Cruet, MD

**Panelists:**
David J. Hart, MD
Girish K. Hiremath, MD
Pierce Nunley, MD
John E. O’Toole, MD
Andrew J. Ringer, MD
Michael Patrick Steinmetz, MD

This breakfast seminar will provide an up-to-date review of the pathophysiology, medical management, surgical options and recent clinical trials related to spinal cord injury.

**Learning Objectives:**
After completing this educational activity, participants should be able to:

- Discuss the indications for VP and KP
- Discuss the rationale for choosing VP or KP for a given patient
- Discuss hospital credentialing and delineation of privileges
- Discuss techniques for avoiding complication

120

Management of Acute Spinal Cord Injury

Room 112B, Pennsylvania Convention Center

**Moderator:**
Michael G. Fehlings, MD, PhD

This seminar will review the anatomy and surgery of the major venous sinuses and veins of the brain and the approaches to the cavernous sinus and jugular foramen.

**Learning Objectives:**
After completing this educational activity, participants should be able to:

- Explain the venous hazards of intracranial surgery
- Recognize operative procedures to avoid injury and complications related to the major venous sinus intracranial veins, the cavernous sinus and jugular foramen
- Discuss the anatomy of the approaches to the cavernous sinus and jugular foramen

121

Cerebral Venous System: Surgical Considerations

Room 110B, Pennsylvania Convention Center

**Moderator:**
Albert L. Rhoton Jr., MD

**Panelists:**
Ossama Al-Mefty, MD
Turker Kilic, MD, PhD
Jacques J. Morcos, MD, FRCS
Laligam N. Sekhar, MD, FACS
Chandranath Sen, MD

This seminar will review the anatomy and surgery of the major venous sinuses and veins of the brain and the approaches to the cavernous sinus and jugular foramen.

**Learning Objectives:**
After completing this educational activity, participants should be able to:

- Explain the basic principles behind establishing a research laboratory
- Discuss the importance of collaborative research
- Discuss the importance of expert time and financial management skills when establishing a laboratory

9:45 AM–1:00 PM

PLENARY SESSION I

Ballroom AB, Pennsylvania Convention Center

**Moderators:**
James T. Rutka, MD, PhD
Vincent C. Traynelis, MD
9:45–9:50 AM

WELCOME
Speaker: Vincent C. Traynelis, MD

9:51–10:14 AM

RICHARD C. SCHNEIDER LECTURE
Introduced By: James T. Rutka, MD, PhD
Disruptive Innovation in Neurosurgery: Trauma as a Paradigm
Speaker: Nicholas M. Barbaro, MD

10:15–10:29 AM

CNS Transplantation of Purified Human Neural Stem Cells in Neuronal Ceroid Lipofuscinoses: Phase I Trial
Authors: Nathan R. Selden, MD, PhD; Daniel J. Guillaume, MD (Portland, OR); Stephen L. Huhn, MD (Stanford, CA); Thomas K. Koch, MD; Amira Al-Uzri, MD; Robert D. Steiner, MD (Portland, OR)
Discussions: Nicholas M. Barbaro, MD

10:30–10:44 AM

Comparison of Outcomes of Surgery and Observation in the International Study of Unruptured Intracranial Aneurysms
Authors: James C. Torner, PhD (Iowa City, IA); Robert Brown, MD, MPH (Rochester, MN); Jie Zhang, MS (Iowa City, IA); David Piepgras, MD; John Huston, MD; Irene Meissner, MD (Rochester, MN)
Discussions: E. Sander Connolly Jr., MD

10:45–11:04 AM

HUNT-WILSON LECTURE
Introduced By: William T. Couldwell, MD, PhD
Adjusting the Activity of Individual Circuits in the Brain to Improve Cerebral Function
Speaker: Andres M. Lozano, MD, PhD

11:05–11:19 AM

Does Surgical Treatment for Cervical Spondylotic Myelopathy Result in Long Term Benefit? Two Year Outcomes of the AO Spine North America CSM Multi-Center Prospective Study in 280 Subjects
Authors: Michael G. Fehlings, MD, PhD, FRC (Toronto, Canada); Branko Kopjar, MD, PhD (Seattle, WA); Paul Arnold, MD (Kansas City, KS); Tim Yoon, MD (Atlanta, GA); Alexander Vaccaro, MD (Philadelphia, PA); Darrel Brodke, MD (Salt Lake City, UT); Jens Chapman, MD (Seattle, WA); Christopher Shaffrey, MD (Charlottesville, VA); Michael Janssen, DO (Denver, CO); Rick Sasso, MD (Indianapolis, IN)
Discussions: Alex B. Valadka, MD, FACS

11:20–11:34 AM

Natural History of Meningiomas
Authors: Soichi Oya, MD, PhD; Seon Hwan Kim, MD; Burak Sade, MD; Chong Gue Kim, MD; Jong H. Lee, MD (Cleveland, OH)
Discussions: Carl B. Heilman, MD

11:35–11:49 AM

Surgical Treatment of Spontaneous Spinal Cerebrospinal Fluid leaks
Authors: Wouter I. Schievink, MD; Penelope Kornbluth, NP, MS (Los Angeles, CA)
Discussions: David George Piepgras, MD

11:50 AM–12:04 PM

Favorable Outcomes of Neurosurgical Patients in a Neurosurgeon Directed Multidisciplinary Neuro Critical Care Unit
Authors: Joshua Medow, MD; Giuditta Angelini, MD; Pat Chesmore, RN, MSN; Ben Johnson, PharmD; Laura Isaacson, RD; Edward Stoll, MSSW; Tammy Kunding, RRT; JoAnne Robbins, PhD, SLP; Cheryl Johnson, OT; Stephen Wenk, BA (Madison, WI)
Discussions: Shelly D. Timmons, MD, PhD

12:05–12:09 PM

DISTINGUISHED SERVICE AWARD
Introduced By: Troy M. Tippett, MD
Recipient: Katie Orrico, JD

12:10–1:00 PM

PRESIDENTIAL ADDRESS
Introduced By: Robert E. Harbaugh, MD, FACS
Health Care Reform 2009-2010, A Neurosurgeon’s Perspective
Speaker: Troy M. Tippett, MD
MONDAY, MAY 3

LUNCH SEMINARS

128 1:00–2:45 PM
Mid-level Practitioner Luncheon
Room 113A, Pennsylvania Convention Center
Sponsored in part by Codman and NuVasive
See page 25 for more information

127 1:00–2:45 PM
Young Neurosurgeons (YNS) Luncheon
Room 108AB, Pennsylvania Convention Center
See page 28 for more information

2:45–5:15 PM

SCIENTIFIC SESSION I – TUMOR

Room 201AB, Pennsylvania Convention Center

Moderator:
Frederick F. Lang Jr., MD
Linda M. Liau, MD, PhD

This session will focus on innovations in the diagnosis, management and treatment of tumor neurosurgery. Innovations which have been developed in the last twelve months will be presented.

607 3:16–3:30 PM
A Novel, Reproducible, and Objective Method for Volumetric MRI Assessment of Enhancing Brain Tumors

Authors:
Charles W. Kanaly, MD; Dale Ding, BS; Jenny Hoang, MD; Peter Kranz, MD; James E. Herndon, II, PhD; April D. Coan (Durham, NC); Ian Crocker, MD; Timothy H. Fox, PhD; Paul Pantalone, MS; Anthony Waller (Atlanta, GA); Allan H. Friedman, MD; David Reardon, MD; John H. Sampson, MD, PhD (Durham, NC)

Discussant:
Michael W. McDermott, MD

608 3:31–3:45 PM
BYRON CONE PEVEHOUSE MD AWARD
Comparative Effectiveness Review of Alternate Strategies for Assessing Hypothalamic-Pituitary Axis Function after Microsurgical Resection of Pituitary Adenoma

Authors:
Nicholas F. Marko, MD; Robert J. Weil, MD (Cleveland, OH)

Discussant:
Nelson M. Oyesiku, MD, PhD

609 3:46–4:00 PM
Multi-Session versus Single Session CyberKnife Stereotactic Radiosurgery for Spinal Metastases: The Georgetown & University of Pittsburgh Experience

Authors:
Brandon Stone, BS; Dwight E. Heron, MD; Peter C. Gerszten, MD (Pittsburgh, PA); Gregory Gagnon (Georgetown, DC); Xinxin Dong, PhD (Pittsburgh, PA); Fraser C. Henderson Sr., MD (Georgetown, DC)

Discussant:
Mark H. Bilsky, MD

610 4:01–4:15 PM
A Phase I Trial of Surgical Resection with Biodegradable Carmustine (BCNU) Wafer Placement Followed by Vaccination with Dendritic Cells Pulsed with Tumor Lysate for Patients with Malignant Gliomas

Authors:
John S. Yu, MD; Surasak Phuphanich, MD, DSc; Ray M. Chu, MD; Mia Mazer, MS, OPA-C; Hongqiang Wang, PhD; Natalia Serrano, BS; Miriam Nuno, PhD; Jaime Richardson, RN; Christopher J. Wheeler, PhD; Keith L. Black, MD; Jeremy D. Rudnick, MD (Los Angeles, CA)

Discussant:
James M. Markert Jr., MD

611 4:16–4:30 PM
Use of the Histological Pseudocapsule in Surgery for Cushing’s Disease (CD): Rapid Post-Operative Cortisol Decline Predicts Complete Tumor Resection

Authors:
Stephen J. Monteith, MD; Robert Starke, MD; John A. Jane Jr, MD; Edward H. Oldfield, MD (Charlottesville, VA)

Discussant:
Carl B. Heilman, MD

612 4:31–4:45 PM
The Value of Stereotactic Radiosurgery as Primary Management for Brain Metastases from Breast Cancer

Authors:
Gillian Harrison, BS; Douglas S. Kondziolka, MD, MSc; Hideyuki Kano, MD, PhD; Huai-che Yang, MD; Donald Liew, MD; Ajay Niranjand, MD, MBA; John Flickinger, MD; L. Dade Lunsford, MD (Pittsburgh, PA)

Discussant:
Phillip A. Tibbs, MD
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<tr>
<td>613</td>
<td>4:46–5:00 PM</td>
<td>The Value of 5-Aminolevulinic Acid (5-ALA) for Resection of Diffusely Infiltrating Gliomas</td>
<td>Authors: Georg Widhalm, MD; Stefan Wolfsberger, MD; Georgi Minchev, MD; Adelheid Woehrer, MD; Thomas Czech, MD; Daniela Prayer, MD; Christine Marosi, MD; Matthias Preusser, MD; Johannes Hainfellner, MD; Engelbert Knosp, MD (Vienna, Austria)</td>
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<td>615</td>
<td>2:45–2:59 PM</td>
<td>Nine Years Follow-Up Experiences in Three Different Nucleus Replacement Devices</td>
<td>Authors: Luiz Pimenta, MD, PhD; Etevaldo Coutinho, MD; Luis Marchi, MS; Leonardo Oliveira, BSC (São Paulo, Brazil)</td>
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<td>616</td>
<td>3:00–3:14 PM</td>
<td>Multilevel ACDF with and without BMP: A Comparison of Outcomes and Dysphagia Rates in 150 Patients</td>
<td>Authors: Daniel C. Lu, MD, PhD (Memphis, TN); Dean Chou, MD (San Francisco, CA); Gerald Rodts, MD (Atlanta, GA); Praveen V. Mummaneni, MD (San Francisco, CA)</td>
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<td>617</td>
<td>3:46–4:00 PM</td>
<td>Endoscopic Endonasal Resection of the Odontoid Process – Clinical Outcomes</td>
<td>Authors: Matthew J. Tormenti, MD; Ricky Madhok, MD; Riccardo Carrau, MD; Carl H. Snyderman, MD; Amin B. Kassam, MD; Paul A. Gardner, MD (Pittsburgh, PA)</td>
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<td>618</td>
<td>4:01–4:15 PM</td>
<td>The Accuracy of Intra-Operative Electromyographic Monitoring to Determine the Presence of Malpositioned Pedicle Screws in the Lumbosacral Spine: An Analysis of 2450 Consecutive Screws</td>
<td>Authors: Matthew J. McGirt, MD; Scott L. Parker, BS; S. Harrison Farber; Anubhav G. Amin, BS; Ali Bydon, MD; Daniel M. Sciubba, MD; Jean-Paul Wolinsky, MD; Ziya L. Gokaslan, MD; Timothy F. Witham, MD (Baltimore, MD)</td>
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<td>619</td>
<td>4:16–4:30 PM</td>
<td>Surgery in Multisegmental Cervical Spondylitic Myelopathy: Anterior or Posterior Approach – Indications and Outcomes in a Series of 132 Patients</td>
<td>Author: Sumit Sinha (New Delhi, India)</td>
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<td>620</td>
<td>4:31–4:45 PM</td>
<td>Accuracy of Free Hand Pedicle Screws in the Thoracic and Lumbar Spine: Analysis of 6,816 Consecutive Screws</td>
<td>Authors: Matthew J. McGirt, MD; Scott L. Parker, BS; S. Harrison Farber; Anubhav G. Amin, BS; Anne-Marie Rick, BS; Ali Bydon, MD; Daniel M. Sciubba, MD; Jean-Paul Wolinsky, MD; Ziya L. Gokaslan, MD; Timothy F. Witham, MD (Baltimore, MD)</td>
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**SYNTHES SKULL BASE AWARD**

**Gamma Knife Radiosurgery for Pituitary Adenomas: Factors Related to Radiologic and Endocrine Outcomes in a Series of 400+ Patients**

**Authors:**
- Jason P. Sheehan, MD, PhD;
- Nader Pouratian, MD, PhD;
- Edward Laws, MD;
- Mary Lee Vance, MD (Charlottesville, VA)

**Discussant:**
Sanjay Kumar, MD

**2:45–5:15 PM**

**SCIENTIFIC SESSION II – SPINE**

Room 204AB, Pennsylvania Convention Center

**Moderator:**
Praveen V. Mummaneni, MD
Michael Y. Wang, MD

This session will focus on innovations in the diagnosis, management and treatment of spinal neurosurgery. Innovations which have been developed in the last twelve months will be presented.

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**3:15–3:45 PM**

**INVITED SPEAKER**

Bending the Health Cost Curve and Improving Spine Care: Strategies for Success

Stephen L. Ondra, MD

**3:46–4:00 PM**

Endoscopic Endonasal Resection of the Odontoid Process – Clinical Outcomes

Matthew J. Tormenti, MD; Ricky Madhok, MD; Riccardo Carrau, MD; Carl H. Snyderman, MD; Amin B. Kassam, MD; Paul A. Gardner, MD (Pittsburgh, PA)

**3:41–4:05 PM**

**2:45–5:15 PM**

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Stephen L. Ondra, MD

**3:46–4:00 PM**

Endoscopic Endonasal Resection of the Odontoid Process – Clinical Outcomes

Matthew J. Tormenti, MD; Ricky Madhok, MD; Riccardo Carrau, MD; Carl H. Snyderman, MD; Amin B. Kassam, MD; Paul A. Gardner, MD (Pittsburgh, PA)

**3:41–4:05 PM**

**2:45–5:15 PM**

**SCIENTIFIC SESSION II – SPINE**

Room 204AB, Pennsylvania Convention Center

**Moderator:**
Praveen V. Mummaneni, MD
Michael Y. Wang, MD

This session will focus on innovations in the diagnosis, management and treatment of spinal neurosurgery. Innovations which have been developed in the last twelve months will be presented.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Details</th>
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<tbody>
<tr>
<td>4:46–5:00 PM</td>
<td>Intermediate Segment Degeneration after Noncontiguous Anterior Cervical Fusion</td>
</tr>
<tr>
<td>Authors:</td>
<td>Erica F. Bisson, MD (Salt Lake City, UT); Mical Samuelson, MD (Austin, TX); Ronald I. Apfelbaum, MD (Salt Lake City, UT)</td>
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<tr>
<td>Discussant:</td>
<td>Michael Y. Wang, MD</td>
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<tr>
<td>5:01–5:15 PM</td>
<td>Smoking is a Predictor of Response to ACDF with Instrumentation in Patients with Single-Level DDD</td>
</tr>
<tr>
<td>Authors:</td>
<td>Paul M. Arnold, MD, FACS (Kansas City, KS); Michael Fehlings, MD, PhD (Toronto, Canada); Rick Sasso, MD (Indianapolis, IN)</td>
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<tr>
<td>Discussant:</td>
<td>Robert F. Heary, MD</td>
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<tr>
<td>2:45–5:15 PM</td>
<td>SCIENTIFIC SESSION III – STEREOTACTIC AND FUNCTIONAL</td>
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<td></td>
<td>Room 202AB, Pennsylvania Convention Center</td>
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<tr>
<td>Moderator:</td>
<td>Philip A. Starr, MD, PhD</td>
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<td></td>
<td>This session will focus on innovations in the diagnosis, management and treatment of stereotactic and functional neurosurgery. Innovations which have been developed in the last twelve months will be presented.</td>
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<tr>
<td>2:45–2:59 PM</td>
<td>Real-Time Intraparenchymal Convection Enhanced Delivery: Using Saline to Generate T2 Previews of Subsequent Therapeutic Distributions</td>
</tr>
<tr>
<td>Authors:</td>
<td>R. Mark Richardson, MD, PhD; Francisco Gimenez, BS; Krystof S. Bankiewicz, MD, PhD (San Francisco, CA)</td>
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<tr>
<td>Discussant:</td>
<td>Edward H. Oldfield, MD</td>
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<tr>
<td>3:00–3:14 PM</td>
<td>Neural Stem Cells Exist within the Cerebrospinal Fluid of the Adult Human CNS</td>
</tr>
<tr>
<td>Authors:</td>
<td>Raymond F. Sekula, MD; Sasha H. Bakhu, PhD; Stefan F. Zappe, PhD (Pittsburgh, PA)</td>
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<tr>
<td>Discussant:</td>
<td>Nathan R. Selden, MD, PhD</td>
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<tr>
<td>3:15–3:29 PM</td>
<td>MR-Guided Focused Ultrasound for Transcranial Non-Invasive Central Lateral Thalamotomy</td>
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<tr>
<td>Authors:</td>
<td>Daniel Jeanmonod, MD; Anne Morel, PhD; Beat Werner, MSc (Zurich, Switzerland); Eyal Zadricario, MSc (Haifa, Israel); Ernst Martin, MD (Zurich, Switzerland)</td>
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<tr>
<td>Discussant:</td>
<td>Gordon Hirsh Baltuch, MD, PhD</td>
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<tr>
<td>3:30–3:44 PM</td>
<td>First Results of the Interim Analysis of the Randomized Controlled SVASONA Trial for Idiopathic Normal Pressure Hydrocephalus (ISRCTN51046698)</td>
</tr>
<tr>
<td>Authors:</td>
<td>Ullrich Meier, MD, PhD; Johannes Lemcke, MD (Berlin, Germany); Cornelia Müller, MD; Michael Fritsch, MD, PhD; Michael Kiefer, MD, PhD; Regina Eymann, MD, PhD (Greifswald, Germany); Uwe Kehler, MD, PhD; Niels Langer, MD (Hamburg, Germany); Veit Rohde, MD, PhD; Hans-Christoph Ludwig, MD, PhD (Göttingen, Germany); Friedrich Weber, MD, PhD; Veselav Remenez, MD (Cologne-Merheim, Germany); Martin Schuhmann, MD, PhD (Tübingen, Germany); Dirk Stengel, MD, PhD (Berlin, Germany)</td>
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<td>Discussant:</td>
<td>Michael Y. Oh, MD</td>
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<td>4:16–4:30 PM</td>
<td>Human Ventral Striatum Neurons Encode Reward Expectation</td>
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<tr>
<td>Authors:</td>
<td>Sameer Sheth, MD, PhD; Matthew Mian, BSE; John Gale, PhD; Christian Camargo, BA; Shaun Patel, BA; Jason Gerrard, MD, PhD; Darin Dougherty, MD; Emad Eskandar, MD (Boston, MA)</td>
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<tr>
<td>Discussant:</td>
<td>Michael Y. Oh, MD</td>
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<tr>
<td>4:31–4:45 PM</td>
<td>Real-Time Electrocorticographic Mapping of Eloquent Cortex</td>
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<tr>
<td>Authors:</td>
<td>Kai J. Miller, PhD; Adam O. Hebb, MD; Jeffrey G. Ojemann, MD (Seattle, WA)</td>
</tr>
<tr>
<td>Discussant:</td>
<td>Michael M. Haglund, MD</td>
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</tbody>
</table>
630 4:46–5:00 PM
Mapping the Anterior Temporal Lobe for Epilepsy Surgery Using fMRI

Authors: William L. Gross, BA; Jeffrey R. Binder, MD (Milwaukee, WI)

Discussant: Jeffrey G. Ojemann, MD

631 5:01–5:15 PM
Radiosurgery in Multiple Metastases, (≥ 4), Criteria of Treatment

Authors: Kita Sallabanda Diaz, MD, PhD; Jose Samblas Garcia, MD, FACS; Jose Carlos Bustos, MD, PhD; Jose Angel Gutierrez Diaz, MD, PhD; Cesar Beltran, MD, FACS; Graciela Gracia, MD, FACS; Cramen Peraza, PhD; Jose Miguel Delgado, PhD; Hugo Marsiglia, MD, Prof (Madrid, Spain)

Discussant: Douglas S. Kondziolka, MD

2:45–5:15 PM
SCIENTIFIC SESSION IV – PEDIATRICS
Room 204C, Pennsylvania Convention Center

Moderator: Leslie D. Cahan, MD
Mark D. Krieger, MD

This session will focus on innovations in the diagnosis, management and treatment of pediatric neurosurgery. Innovations which have been developed in the last twelve months will be presented.

632 2:45–2:59 PM
Outcomes in Pediatric Patients with Chiari I Malformation Treated without Surgery

Authors: David M. Benglis Jr., MD; Derek Covington; Ritwik Bhatia; Sanjiv Bhatia, MD; Mohamed Samy Elhammady, MD; John Ragheb, MD; Glenn Morrison, MD; David I. Sanberg, MD (Miami, FL)

Discussant: Arnold H. Menezes, MD

633 3:00–3:14 PM
Predictors of Long-Term Survival in Children with Juvenile Pilocytic Astrocytoma

Authors: Rachel Grossman, MD; Debraj Mukherjee, MD, MPH; Stephanie Downing, MD; David C. Chang, MD; Hadie Adams, MD; George I. Jallo, MD; Benjamin S. Carson, MD; Alfredo Quinones-Hinojosa, MD (Baltimore, MD)

Discussant: Phillip B. Storm, MD

634 3:15–3:29 PM
Management of Pediatric Intracranial Arteriovenous Malformations: Experience with Multimodality Therapy

Authors: Tim E. Darsaut, MD, FRCS (Montreal, Canada); Raphael Guzman, MD; Mary Marcellus, RN; Lu Tian, PhD; Michael S. Edwards, MD; Huy M. Do, MD; Steven D. Chang, MD; John R. Adler, MD; Michael P. Marks, MD; Gary K. Steinberg, MD, PhD (Stanford, CA)

Discussant: R. Michael Scott, MD

635 3:30–3:44 PM
The First 70 Cases of Trans-sutural Distraction Osteogenesis in Craniosynostosis Surgery

Authors: Soo Han Yoon, MD; Dong Ha Park, MD (Suwon, Republic of Korea)

Discussant: Tae Sung Park, MD

636 3:45–3:59 PM
Recurrence after Gross Total Resection of Low-Grade Pediatric Brain Tumors: The Frequency and Timing of Post-Operative Imaging

Authors: Albert H. Kim, MD, PhD; Catalina Santa; Mark K. Kieran; Susan N. Chi; Nicole J. Ullrich; R. Michael Scott; Liliana Goumenerova (Boston, MA)

Discussant: James T. Rutka, MD, PhD

637 4:00–4:14 PM
Cosmetic and Cognitive Outcomes of Positional Plagiocephaly Treatment

Authors: Mohammed F. Shamji, MD, PhD; Elana C. Fric-Shamji, MD; Praveen Merchant, BS; Michael Vassilyadi, MD; Enrique Ventureyra, MD (Ottawa, Canada)

Discussant: John A. Jane Jr., MD

4:15–4:45 PM
INVITED SPEAKER
Management of Birth Brachial Plexus Injury
Tae Sung Park, MD

638 4:46–5:00 PM
Epilepsy Surgery of the Temporal Lobe in Pediatric Population: A Retrospective Analysis

Authors: Miguel A. Lopez-Gonzalez, MD; Jorge A. Gonzalez-Martinez, MD; Ann Warbel, CNRN; William E. Bingaman Jr., MD (Cleveland, OH)

Discussant: Shenandoah Robinson, MD
Orbitozygomatic Resection for Hypothalamic Hamartoma and Epilepsy: Patient Selection and Outcome

Authors: Adib A. Abla, MD; Harold Rekate, MD; David Wilson, MD; Timothy Uschold, MD; Maggie Varland, RN, BSN; Jack Kerrigan, MD (Phoenix, AZ)

Discussant: Timothy B. Mapstone, MD

Inheritance Pattern of Familial Moyamoya Disease in North America: Autosomal Dominant with Incomplete Penetrance

Authors: Achal S. Achrol, MD; Monika Varga, BS; Keyan Salari, BA; Raphael Guzman, MD; Teresa Bell-Stephens, MD; Gary K. Steinberg, MD, PhD (Stanford, CA)

Discussant: Murat Gunel, MD

Length of Stay and Total Hospital Charges of Clipping versus Coiling for Ruptured and Unruptured Adult Cerebral Aneurysms in the Nationwide Inpatient Sample Database: 2002-2006

Authors: Brian L. Hoh, MD; Yueh-Yun Chi, PhD; Matthew Lawson, MD; J Mocco, MD (Gainesville, FL); Frederick G. Barker II, MD, FACS (Boston, MA)

Discussant: H. Hunt Batjer, MD, FACS

Restenosis Rates Following Vertebral Artery Origin Stenting: Does Stent Type Make a Difference?

Authors: Sabareesh K. Natarajan, MD, MS (Buffalo, NY); Christopher S. Ogilvy, MD; Xinyu Yang, MD, PhD (Boston, MA); Erik F. Hauck, MD, PhD; Luona Sun, BS; L. Nelson Hopkins III, MD; Adnan H. Siddiqui, MD, PhD; Elad I. Levy, MD (Buffalo, NY)

Discussant: Felipe C. Albuquerque, MD

Emergency Extracranial-Intracranial Bypass for Acute Ischemic Stroke

Authors: Eric S. Nussbaum, MD; Tariq M. Janjua, MD; Archie Defilfo, MD; Jody Lowary, CPNP; Leslie Nussbaum, MD, PhD (Saint Paul, MN)

Discussant: Robert F. Spetzler, MD

Natural Course, Management Risks and Quality of Life of Patients with Unruptured Cerebral Aneurysms: Japan Unruptured Cerebral Aneurysm Study II (UCAS II)

Authors: Akio Morita, MD, PhD (Tokyo, Japan)

Discussant: Robert J. Dempsey, MD
4:45–5:15 PM

INVITED SPEAKER

Cerebrovascular Surgery: If we Want things to Stay as they are, Things will Have to Change

Neal F. Kassell, MD

2:45–5:15 PM

SCIENTIFIC SESSION VI – NEUROTRAUMA AND CRITICAL CARE

Room 203AB, Pennsylvania Convention Center

Moderator:
Steven Casha, MD, PhD
M. Sean Grady, MD

This session will focus on innovations in the diagnosis, management and treatment of neurotrauma neurosurgery. Innovations which have been developed in the last twelve months will be presented.

648  2:45–2:59 PM

Incorporating a Parenchymal Thermal Diffusion CBF Probe in Bedside Assessment of Cerebral Autoregulation and Vasoreactivity in Severe TBI Patients

Authors:
Guy Rosenthal, MD; Rene Sanchez-Meja, MD; Nicolas Phan, MD; J. Claude Hemptihill III, MD; Christine Martin, RN, MS; Geoffrey T. Manley, MD, PhD (San Francisco, CA)

Discussant:
M. Sean Grady, MD

649  3:00–3:14 PM

Outcomes of 34 Patients from the Wars in Iraq and Afghanistan who have Undergone Bilateral or Bicompartmental Craniectomies

Authors:
Michael S. Dirks, MD (Washington, DC); Robert Ecker, MD; Lisa Mulligan, MD (Bethesda, MD); Rocco Armonda, MD; Randy Bell, MD (Washington, DC)

Discussant:
Alex B. Valadka, MD, FACS

650  3:15–3:29 PM

Biological and Mechanical Profile of Bench Top Blast Wave Traumatic Brain Injury Model in Rats

Authors:
Atsuhiro Nakagawa, MD, PhD; Kiyonobu Ohtani, PhD; Hiroaki Yamamoto, PhD; Kazuyoshi Takayama, PhD; Teiji Tominaga, MD, PhD (Sendai, Japan)

Discussant:
William C. Broaddus, MD, PhD

3:30–4:00 PM

INVITED SPEAKER

Stop the Insanity: Getting Results from TBI Trials

Alex B. Valadka, MD, FACS

651  4:01–4:15 PM

The Influence of Insurance Status on Transfer for Head Injury Patients at Massachusetts General Hospital from 1993–2009

Authors:
Maya Babu, BS; Brian V. Nahed, MD; Marc A. DeMoya, MD; William T. Curry, MD (Boston, MA)

Discussant:
Jack E. Wilberger Jr., MD

652  4:16–4:30 PM

Clinical Trials of Acidic Fibroblast Growth Factor in Chronic Human Spinal Cord Injury

Authors:
Henrich Cheng, MD, PhD; Jau-Ching Wu, MD; Wen-Cheng Huang, MD; Yun-An Tsai, MD; Tsung-Hsi Tu, MD; Li-Yu Fay, MD (Taipei, Taiwan)

Discussant:
Peter David LeRoux, MD

655  4:31–4:45 PM

A Comparison of Hinge Craniotomy and Craniectomy for the Treatment of Malignant Intracranial Hypertension: Long-Term Clinical Outcomes

Authors:
Tyler J. Kenning, MD; John W. German, MD (Albany, NY)

Discussant:
J. Paul Elliott, MD

654  4:46–5:00 PM

The Utility of FA-SPM Imaging for Detecting Minute Brain Lesions Secondary to Diffuse Axonal Injury

Authors:
Jun Shinoda, MD, PhD, FRC; Yoshitaka Asano, MD, DMSc; Shunsuke Takenaka, MD; Tatsuki Aki, MD; Jitsuhiro Yamada, MD, PhD (Minokamo, Japan)

Discussant:
Howard M. Eisenberg, MD

4:46–5:00 PM

Question and Answer

5:01–5:15 PM
MONDAY, MAY 3

**JOINT ANNUAL BUSINESS MEETING OF THE AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS AND THE AMERICAN ASSOCIATION OF NEUROSURGEONS**

**5:30 – 6:30 PM**

Room 107AB, Pennsylvania Convention Center

5:30-8:30 PM

**Introduction to Stereotactic Radiosurgery**

Grand Ballroom Salon H, Philadelphia Marriott Downtown

*Fee:* $25

*Moderator:* Gene H. Barnett, MD, PhD

*Panelists:*
- Antonio A. F. De Salles, MD, PhD
- William A. Friedman, MD, FACS
- Peter C. Gerszten, MD, MPH
- Douglas S. Kondziolka, MD

*Description:* The course is designed as an introduction to stereotactic radiosurgery for neurosurgeons interested in learning general radiobiologic principles and clinical strategies. Critical topics to be covered include: Functional Radiosurgery; Spinal Radiosurgery; Malignant Brain Tumors and Benign Brain Lesions and the indications for each. The course will be 3 hours in length and include dinner. The first 2.25 hours (CME) will cover didactic talks; the final .75 hour will allow attendees to view and experiment with different planning workstations.

*Learning Objectives:* Course Objectives: Upon completion of this activity, participants should be able to:

1. Outline the basic radiobiologic principles of radiosurgery
2. Demonstrate current indications, technologies, and outcomes for malignant brain tumors; benign brain lesions; spine and functional radiosurgery
3. Discuss complication avoidance and management in the setting of radiosurgical patients
4. Evaluate how applying radiobiologic principles can enhance your neurosurgical practice

**HISTORY DINNER**

6:00–9:30 PM

Pennsylvania Academy of the Fine Arts

Featuring the Setti S. Rengachary Memorial Lecture

*Presenter:* Richard R. Beeman, PhD

Professor and Chair, Department of History, University of Pennsylvania

*Title:* The Founding Fathers of 1787: Lessons in Political Leadership

6:00–7:00 PM

**Reception and Tour with Docents**

7:00–8:15 PM

**Dinner**

8:15–9:00 PM

**Setti S. Rengachary Lecture**

9:00–9:30 PM

**Tour the Art Gallery on your own**

Within walking distance of the Pennsylvania Convention Center.

Shuttle service will not be provided.

**AANS INTERNATIONAL RECEPTION**

6:30–8:00 PM

Philadelphia Marriott Downtown

Liberty Ballroom

See page 24 for full details of the event.

Visit the AANS Resource Center for additional iPod touch® information!
on strategies to prepare for the oral ABNS examination.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Discuss requirements for board certification
- Prepare for the ABNS oral examination

**202 Multidisciplinary Management of Cerebral AVMs**

Room 112A, Pennsylvania Convention Center

**Moderator:**
Neil A. Martin, MD

**Panelists:**
Aaron S. Dumont, MD  
David M. Hasan, MD  
Bruce E. Pollock, MD  
Robert H. Rosenwasser, MD, FACS  
Gary K. Steinberg, MD, PhD

*Free for Residents, Fellows and Medical Students*

This will be a comprehensive discussion of the multidisciplinary management of complex cerebral AVMs. The perspective of neurosurgeons, radiosurgeons and interventionists will be presented.

**Learning Objectives:**
After completing this educational activity, participants should be able to:
- Review the options for surgical approaches to tuberculum sellae meningiomas
- Review the bifrontal extended frontal approach
- Review visual outcomes following surgery for tuberculum sellae meningiomas
- Review outcomes for children after surgery for craniopharyngiomas
- Review outcomes of endoscopic transphenoidal approaches

**204 Foraminal and Far Lateral Lumbar Disc Herniations**

Room 201C, Pennsylvania Convention Center

**Moderator:**
John A. Jane Sr., MD, PhD

**Panelists:**
Benoit Goulet, MD, FRCSC  
Patrick W. Hitchon, MD  
Noel I. Perin, MD, FRCS  
Paul D. Sawin, MD

The clinical and imaging characteristics of foraminal and far lateral lumbar disc herniations, as well as the surgical anatomy will be presented. The various surgical approaches paramedian, transmuscular and endoscopic will be described and the indications will be discussed.
Learning Objectives:
After completing this educational activity, participants should be able to:
- Recognize a foraminal and far lateral lumbar disc herniation
- Identify the surgical approaches for foraminal and lateral lumbar disc herniations
- Assess the prognosis of foraminal and lateral disc herniations

205
Lumbar Interbody Fusion
Room 109B, Pennsylvania Convention Center
Moderator:
Eric J. Woodard, MD
Panelists:
Paul M. Arnold, MD, FACS
Catherine J. Gallo, MD
John C. Liu, MD
Chima Osiris Ohaegbulam, MD
Jonathan R. Slotkin, MD

This seminar will describe conditions amenable to lumbar interbody fusion and basic surgical approaches, instrumentation and complications of LIF (Lumbar Interbody Fusion).

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the indications for lumbar interbody fusion and the appropriate investigations to consider in the workup of patients
- Explain the advantages and disadvantages of various lumbar interbody fusion techniques, including minimally invasive options
- Explain approaches to minimize complications
- Discuss the relevant approach anatomy related to LIF surgery
- Discuss the latest technical advances related to LIF surgery

206
Surgical Treatment of Parkinson’s Disease
Room 203AB, Pennsylvania Convention Center
Moderator:
Philip A. Starr, MD, PhD
Panelists:
Aviva Abosch, MD, PhD
M. Sam Eljamel, MD, FRCS
Kenneth A. Follett, MD, PhD
Robert R. Goodman, MD, PhD

Participants will discuss current surgical targets for Parkinson’s disease, a variety of technical approaches and complications.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify potential brain targets for deep brain stimulation in Parkinson’s disease
- Discuss technical alternatives in placement of DBS electrodes
- Review complications of DBS for Parkinson’s disease

207
Current and Future Treatments for Hydrocephalus
Room 112B, Pennsylvania Convention Center
Moderator:
Mark G. Luciano, MD, PhD
Panelists:
Marvin Bergsneider, MD
Abhaya Vivek Kulkarni, MD, FRCS
Michael G. Muhonen, MD
David I. Sandberg, MD

This seminar will review the physiology of hydrocephalus and how new shunt systems and sensor technology are likely to change our way of treating patients. The dynamic aspects of CSF flow and pressure gradients will be discussed, as well as what pressure sensors reveal about the causes of patient symptoms and how a shunting system might be made using physiological data.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify CSF dynamics and how it changes with hydrocephalus
- Distinguish the relationship between clinical symptoms and CSF pressure measurements
- Recognize how this new approach might lead to a better shunt system based on physiological measurements

208
History of Carotid-Cavernous Sinus Fistulae
Room 104B, Pennsylvania Convention Center
Moderator:
Hamad Issam Farhat, MD
Panelists:
Jay U. Howington, MD
Dennis E. McDonnell, MD
William E. Thorell, MD

The treatment of carotid cavernous sinus fistulae has had an extensive and rich history, stemming to the 19th century. This seminar will discuss the origins of carotid occlusion and the many milestones achieved that came with technological advances and a greater understanding of cerebrovascular physiology.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the early treatments of CCF
- Describe interesting modifications for the occlusion of carotid fistulae
- Describe the evolution of endovascular approaches to the treatment of this disease
- Describe the different types of CCFs and differences in their natural history and treatment
- Describe the indications for treatment of CCF
209  
Management of Vasospasm
Room 113C, Pennsylvania Convention Center  
**Moderator:** Peter David Le Roux, MD  
**Panelists:** Saleem I. Abdulrauf, MD, FACS Hildo R.C. Azevedo-Filho, MD Rose Du, MD, PhD R. Loch Macdonald, MD, PhD  
*Free for Residents, Fellows and Medical Students*

This seminar will present the current status of treatment measures for vasospasm. There will be presentations of cases highlighting difficulties in the treatment of cerebral vasospasm.  
**Learning Objectives:**  
After completing this educational activity, participants should be able to:  
- Discuss natural history of idiopathic and degenerative scoliosis in adults  
- Detail appropriate clinical and radiographic evaluation of adult spinal deformity  
- Determine nonoperative and operative treatment options for adult deformity  
- Identify patient related factors that compromise surgical treatment  
- Discuss treatment strategies including use of anterior approaches, osteotomies, spinopelvic fixation and osteobiological agents

210  
Management of Adult Scoliosis
Room 204AB, Pennsylvania Convention Center  
**Moderator:** Christopher I. Shaffrey, MD  
**Panelists:** Robert F. Heary, MD Tyler Robert Koski, MD Frank La Marca, MD Brian A. O’Shaughnessy, MD Daniel M. Sciubba, MD  
*Free for Residents, Fellows and Medical Students*

This seminar will focus on the clinical evaluation and the current surgical management of intramedullary focus of the spinal cord.  
**Learning Objectives:**  
After completing this educational activity, participants should be able to:  
- Evaluate methods and strategies to reduce peri-operative complications  
- Identify operative techniques to optimize safe achievement of optimal outcomes

211  
Intramedullary Spinal Cord Tumors
Room 113A, Pennsylvania Convention Center  
**Moderator:** Paul C. McCormick, MD  
**Panelists:** Lawrence F. Borges, MD Albino P. Bricolo, MD Russell R. Lonser, MD Robert A. Sanford, MD  
*Free for Residents, Fellows and Medical Students*

212  
Building a Comprehensive Spine Center
Room 111AB, Pennsylvania Convention Center  
**Moderator:** E. Hunter Dyer, MD  
**Panelists:** Mark D. D’Alise, MD, FACS James J. Lynch, MD Nathan E. Simmons, MD  
This seminar instructs participants on how to develop a multidisciplinary spine center within their hospital and community setting.  
**Learning Objectives:**  
After completing this educational activity, participants should be able to:  
- Recognize the core components to build an effective spine center  
- Discuss interventional options and design treatment protocols for spine  
- Apply strategies for developing an effective spine program in your practice

213  
Management of Asymptomatic Vascular Lesion
Room 202AB, Pennsylvania Convention Center  
**Moderator:** Warren R. Selman, MD  
**Panelists:** Nicholas C. Bambakidis, MD David Chalif, MD, FACS Howard A. Riina, MD Jason P. Sheehan, MD, PhD H. Richard Winn, MD  
*Free for Residents, Fellows and Medical Students*

This seminar will address decision making and surgical technique for asymptomatic AVMs, aneurysms, carotid disease and intracerebral stenosis/occlusion.
Learning Objectives:
After completing this educational activity, participants should be able to:
- Formulate treatment plans for silent AVMs
- Formulate treatment plans for unruptured aneurysms
- Formulate treatment plans for asymptomatic vascular occlusive disease

214
Neurosurgical Management of Intractable Pain
Room 105AB, Pennsylvania Convention Center
Moderator: Kim J. Burchiel, MD, FACS
Panelists: Giovanni Broggi, MD
Philip L. Gildenberg, MD, PhD
Robert M. Levy, MD, PhD
Richard K. Osenbach, MD
Konstantin V. Slavin, MD

Free for Residents, Fellows and Medical Students
This seminar will review indications, techniques and outcomes of contemporary neurosurgical procedures for the treatment of intractable pain. Attention will be directed toward practical applications of therapies that can be used in a general neurosurgical practice.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Compare the relative roles of noninvasive and invasive therapies for pain treatment
- Contrast the common indications for stimulation and drug delivery therapies for pain management
- Describe outcomes of neuromodulation therapies for pain management

215
Low-Grade Gliomas
Room 204C, Pennsylvania Convention Center
Moderator: Mitchel S. Berger, MD, FACS
Panelists: Hugues Duffau, MD
Kyu-Sung Lee, MD, PhD
Miguel Angel Sanchez Vazquez, MD
Jeffrey H. Wisoff, MD

This seminar will provide an update on current evaluation and management of low grade gliomas. The panel will address the variety of tumors and compare outcomes from different treatment strategies.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the range of pathologies included in low-grade gliomas
- Distinguish between different management strategies for low-grade gliomas

216
Spinal Surgical Challenges
Room 108B, Pennsylvania Convention Center
Moderator: Edward C. Benzel, MD
Panelists: Regis W. Haid Jr., MD
R. Patrick Jacob, MD, FACS
Vincent C. Traynelis, MD

This seminar is designed to present challenging cases that experienced faculty encountered.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss how experienced surgeons overcome decision making obstacles
- Explain the nuances of the clinical decision making process
- Accomplish the aforementioned via ‘real life’ case examples

217
Cerebral Trauma State-of-the-Art Treatment
Room 113B, Pennsylvania Convention Center
Moderator: Alex B. Valadka, MD, FACS
Panelists: Austin R. Colohan, MD, FACS
Allen H. Maniker, MD
David O. Okonkwo, MD, PhD
Jamie S. Ullman, MD

This seminar will review current and future treatment options for patients with traumatic brain injury.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss optimal management strategies for patients with traumatic brain injury
- Describe therapies that may become clinically available in the near future

218
The Spectrum of Adjuvant Therapy for Brain Tumors
Room 109A, Pennsylvania Convention Center
Moderator: Frederick F. Lang Jr., MD
Panelists: Jeffrey N. Bruce, MD, FACS
Amy B. Heimberger, MD
Randy Lynn Jensen, MD, PhD
Douglas W. Laske, MD
James M. Markert Jr., MD

This seminar will provide a state-of-the-art review of the different treatment options available for patients with malignant brain tumors. These treatment options influence radiation therapy, including radiosurgery and chemotherapy.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss current scientific advances
used to diagnose and treat brain tumors
• Discuss current problems with the design of effective therapies and recommend appropriate treatment options
• Design the best treatment programs based on current data for patients with brain tumors

This seminar will review the current issues surrounding the diagnosis and management of traumatic brain surgery in children. The panel will focus on unique diagnosis and therapeutic strategies.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Define the indications of either carotid endarterectomy or carotid angioplasty and stenting for extracranial carotid artery stenosis
• Describe the treatment options, as well as benefits and pitfalls of giant intracranial aneurysms
• Name the patient population that will benefit from open versus endovascular treatment of giant aneurysms
• Describe the indications for the most effective treatment of small arteriovenous malformations and the role of preoperative embolization
• Use evidence based medicine in conjunction with current practice to determine which patients will benefit most from endovascular therapies or traditional open surgeries

219
New and Evolving Technologies for Minimally Invasive Surgery of the Lumbar Disc
Room 107AB, Pennsylvania Convention Center
Moderator:
Richard G. Fessler, MD, PhD
Panelists:
Charles L. Branch Jr., MD
Dean Chou, MD
Larry T. Khoo, MD
Jean-Pierre Mobasser, MD
Michael K. Rosner, MD

This seminar will present and evaluate new technologies for treating pathologies of the lumbar disc.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Evaluate the safety and effectiveness of new lumbar disc technologies
• Describe current indications for use of new lumbar disc technologies

221
Controversies in Cerebrovascular and Endovascular Neurosurgery
Room 110B, Pennsylvania Convention Center
Moderator:
Erol Veznedaroglu, MD
Panelists:
Neal F. Kassell, MD
Christopher J. Koebbe, MD
Michael T. Lawton, MD
Elad I. Levy, MD, FACS
B. Gregory Thompson Jr., MD

The introduction and acceptance of endovascular therapies for cerebrovascular disorders has revolutionized the treatment for cerebrovascular disease. With more cerebrovascular neurosurgeons becoming trained in both techniques, the treatment paradigms are changing and are often controversial. This breakfast seminar will examine the different treatment modalities for carotid artery disease, intracerebral aneurysms, and arteriovenous malformations. The discussants will present data and their own personal treatment methods to support their particular position. Each discussant will present their actual treatment paradigms and will be asked to support it.

Learning Objectives:
After completing this educational activity, participants should be able to:
• Define the indications of either carotid endarterectomy or carotid angioplasty and stenting for extracranial carotid artery stenosis
• Describe the treatment options, as well as benefits and pitfalls of giant intracranial aneurysms
• Name the patient population that will benefit from open versus endovascular treatment of giant aneurysms
• Describe the indications for the most effective treatment of small arteriovenous malformations and the role of preoperative embolization
• Use evidence based medicine in conjunction with current practice to determine which patients will benefit most from endovascular therapies or traditional open surgeries

222
Pediatric Head Injury
Room 104A, Pennsylvania Convention Center
Moderator:
Thomas G. Luerssen, MD
Panelists:
Joel C. Boaz, MD
Ann-Christine Duhaime, MD
Hugh J. L. Garton, MD, MHSc

Free for Residents, Fellows and Medical Students

Learning Objectives:
After completing this educational activity, participants should be able to:
• Recognize current issues specifically related to traumatic brain injury in infants and children
• Explain the application of diagnostic strategies for head injured children
• Discuss the therapeutic options and their associated risks and benefits
• Discuss short and long term outcome issues related to childhood TBI

PLENARY SESSION II
9:45 AM - 1:00 PM
Ballroom AB, Pennsylvania Convention Center
Moderators:
Matthew A. Howard III, MD
Troy M. Tippett, MD

9:45–10:04 AM
RHOTON FAMILY LECTURE
Introduced By:
Paul C. McCormick, MD
High-Risk Carotid Surgery 2010
Speaker:
Christopher M. Loftus, MD, FACS

9:45–10:04 AM
Neurosurgery Research and Education Foundation (NREF)
Grant Recipients Presentation
Speaker:
Griffith R. Harsh IV, MD

10:05–10:10 AM
Neurosurgery Research and Education Foundation (NREF)
Grant Recipients Presentation
Speaker:
Griffith R. Harsh IV, MD
Balloon Remodeling vs. Stent Assisted Techniques for Intracranial Aneurysms Comparison of Immediate to Long Term Outcome and Complications in a Single Institution Experience

Authors: Ali Alaraj, MD; Troy Munson, MD; Sepideh Amin-Hanjani, MD, FRCS; Fady Charbel, MD; Victor Aletich, MD (Chicago, IL)

Discussant: Robert H. Rosenwasser, MD, FACS

A Reliable Blood Biomarker that can be Used to Distinguish Treatment: Effect from Recurrent Glioma

Authors: Andrew T. Parsa, MD, PhD; Courtney Crane, PhD; Isaac Yang, MD; Michael D. Prados, MD; Susan M. Chang, MD; Lewis Lanier, PhD (San Francisco, CA)

Discussant: Ennio Antonio Chiocca, MD, PhD

Accuracy of ICD-9-Based and Retrospective Assessments of Perioperative Adverse Events: Comparison with a Prospective Assessment of Complications in Spine Surgery

Authors: John K. Ratliff, MD, FACS; Rani Nasser, BS; Roland Chitale, MD; Peter Campbell, MD; Jennifer Malone, CRNP; Sanjay Yadla, MD; Mitchel Maltenfort, PhD (Philadelphia, PA)

Discussant: Paul C. McCormick, MD

Elucidating the Etiology of Normal Pressure Hydrocephalus (NPH) and the Spectrum of Surgically Treatable Dementias

Authors: Sebastian F. Koga, MD; David T. Bourne, MD; David E. Bruns, MD; John A. Jane Sr., MD, PhD (Charlottesville, VA)

Discussant: Matthew A. Howard III, MD

Mechanisms of Disease-Like Degeneration of Embryonic Neural Grafts in Patients with Parkinson's and Huntington's Diseases

Authors: Thomas B. Freeman, MD, FACS (Tampa, FL); Francesca Cicchetti, PhD (Sainte-Foy, Canada); Robert A. Hauser, MD (Tampa, FL); Yaping Chu, PhD (Chicago, IL); Sam Saporta, MD (Tampa, FL); Elliott J. Mufson, PhD (Chicago, IL); Warren Olanow, MD (New York, NY); Jeffrey H. Kordower, PhD (Chicago, IL)

Discussant: Roy A. E. Bakay, MD

Outcome Following Traumatic Cervical Central Cord Syndrome Associated with Spinal Stenosis

Authors: Bizhan Aarabi, MD, FRCSC; Stuart Mirvis, MD; Kathirkama Shanmuganathan, MD; Alexander Melvin, MS; Carla Aresco, CRNP; Tiffany Blacklock, CRNP; David Chesler, MD; Christopher Maulucci, MD; Mark Iguchi, MD (Baltimore, MD)

Discussant: Michael G. Fehlings, MD, PhD

Advancements in Neurotrauma Care

Room 113B, Pennsylvania Convention Center
2:00–5:00 PM

Fee: $100
Free for N&PE

Moderator: Twyila Lay, NP, MS

Speaker: Jonathan R. Jagid, MD

Marianne E. Langlois, PA-C

Ava Puccio, RN, PhD
Shirley I. Stiver, MD, PhD
Shelly D. Timmons, MD, PhD

See page 25 for more details.

2:45–5:30 PM
AANS/CNS CEREBROVASCULAR SECTION

Room 201C, Pennsylvania Convention Center

Moderators:
Kevin M. Cockroft, MD, FACS
Carlos A. David, MD

2:45–3:35 PM
DONAGHY LECTURE

Introduced By:
John A. Wilson, MD, FACS

Speaker:
L. Nelson Hopkins III, MD

Darwin and Cerebrovascular Surgery: Extinction versus Evolution

3:36–4:15 PM
SYMPOSIUM

Moderator:
Murat Gunel, MD

3:36–3:55 PM
Update on Endovascular Treatment of Acute Ischemic Stroke

Speaker:
Peter A. Rasmussen, MD

3:56–4:15 PM
Update on Microsurgical Treatment of Cerebral Ischemia

Speaker:
Fady T. Charbel, MD

707 4:16–4:22 PM
AANS MEDICAL STUDENT SUMMER RESEARCH FELLOWSHIP

Neural Proliferation of Bone Marrow-Derived Cells in a Murine Model of Intracerebral Hemorrhage

Authors:
Teresa Wojtasiewicz; Paul Gigante; Christopher P. Kellner; Justin Gorski; Mason Yeh; Sergei Sosunov; Brian Y. Hwang; Raqeeb M. Haque, MD; E. Sander Connolly Jr., MD (New York, NY)

708 4:23–4:29 PM
Does Method of Aneurysm Treatment Affect Clot Clearance after Subarachnoid Hemorrhage?

Authors:
George M. Ibrahim, MD; Shobhan Vachhrajani, MD; R. Loch Macdonald, MD, PhD (Toronto, Canada)

709 4:30–4:36 PM
Transplantation of Human Neural Stem Cells Improves Axonal Plasticity and Transport in the Post-Ischemic Microenvironment

Authors:
Tonya M. Bliss, PhD; Robert H. Andres, MD; Ke Zhan, PhD; Guohua Sun, MD (Stanford, CA); McMillan E, BS (Madison, WI); Bruce T. Schaar, PhD (Stanford, CA); Clive N. Svendsen, PhD (Madison, WI); Gary K. Steinberg, MD, PhD (Stanford, CA)

711 4:44–4:50 PM
Simvastatin Prevents Uncoupling of Endothelial Nitric Oxide Synthase after Subarachnoid Hemorrhage in Mice

Authors:
Robert L. Macdonald, MD, PhD; Mohammed Sabri, BSC; Jinglu Ai, MD, PhD; Asma Tariq, BSC; Esther Jeon, BSC (Toronto, Canada)

712 4:51–4:57 PM
Endovascular Treatment Increases but Gamma-Knife Radiosurgery Decreases Angiogenic Activity of AVMs: An In Vivo Experimental Study Using Rat Cornea Model

Authors:
Akin Akakin, MD; Abdulkadir Ozkan, MSc; Emel Akgun, BSC; Demet Yalcinkaya-Koc, MD; Deniz Konya, MD; Necmettin Pamir, MD; Turker Kilic, MD, PhD (Istanbul, Turkey)

713 4:58–5:04 PM
Increasing Prevalence of Cerebral Arteriovenous Malformations During Childhood

Authors:
Wajd N. Al-Holou, MD; Thomas M. O’Lynnger, BS; Hugh J.L. Garton, MD; Byron G. Thompson, MD; Aditya Pandey, MD; Cormac O. Maher, MD (Ann Arbor, MI)

714 5:05–5:11 PM
Differential Recanalization Rates in Polymer / Platinum Coil Mixtures: An Analysis of 678 Aneurysms

Authors:
Michael J. Alexander, MD (Los Angeles, CA); Ketan R. Bulsara, MD (New Haven, CT); Osama O. Zaidat, MD (Milwaukee, WI); Marshall Tolbert, MD (Anchorage, AK); Miriam Nuno, PhD (Los Angeles, CA)
TUESDAY, MAY 4

715 5:12–5:18 PM
Endovascular Treatment of Ruptured and Unruptured Carotid-Ophthalmic Aneurysms: A Single-Institution Experience
Authors: Sanjay Yadla, MD; Peter G. Campbell, MD; Bartosz Grobelny, BS; Robert H. Rosenwasser, MD, FACS; Pascal M. Jabbour, MD (Philadelphia, PA)

716 5:19–5:25 PM
Gender Differences in Clinical Presentation and Treatment Outcomes in Moyamoya Disease
Authors: Nadia Khan, MD; Achal S. Achrol, MD; Raphael Guzman, MD; Robert Dodd, MD, PhD; Teresa Bell-Stephens, RN; Gary K. Steinberg, MD, PhD (Stanford, CA)

5:26–5:30 PM
Question and Answer

2:45–3:00 PM
2009 CODMAN RECIPIENT PRESENTATION
Quantitative MRI Assessment of the Injured Spinal Cord to Assess Recovery and Functional Plasticity
Speaker: David Cadotte, MD

717 3:01–3:10 PM
SYNTHES RESIDENT CRANIOFACIAL AWARD
Determination of Orexin Neuropeptide Dynamics by Brain Microdialysis Following Traumatic Brain Injury in Mice
Authors: Jon T. Willie, MD, PhD; Katherine E. Schwetye, BS; David L. Brody, MD, PhD (St. Louis, MO)

3:11–3:20 PM
SYNTHES SPINAL CORD INJURY RESIDENT AWARD
Trophic Factor Expression in Cells and Tissues Important in Repair of Spinal Cord Injury
Authors: Gregory W. Hawryluk, MD; Andrea Mothe, PhD; Charles Tator, MD, PhD, FRC; Michael Fehlings, MD, PhD (Toronto, Canada)

4:11–4:30 PM
Therapeutic Hypothermia after Spinal Cord Injury
Speaker: Allan D. Levi, MD, PhD

4:31–4:50 PM
Minimally Invasive Vertebrectomy and Instrumentation for TL Burst FXS
Speaker: Adam S. Kanter, MD

5:11–5:30 PM
Brain Trauma Foundation Guidelines Consensus Algorithm for Treatment of Intracranial Hypertension
Speaker: Jamshid Ghajar, MD, PhD

2:45–5:30 PM
AANS/CNS SECTION ON STEREOTACTIC AND FUNCTIONAL SURGERY
Room 202AB, Pennsylvania Convention Center
Moderators: Aviva Abosch, MD, PhD
Michael G. Kaplitt, MD, PhD
AANS/CNS Stereotactic and Functional Section Jointly Sponsored by Pediatric Section Symposium

2:45–3:03 PM
Surgical Treatment of Pediatric Epilepsy
Speaker: James T. Rutka, MD, PhD
TUESDAY, MAY 4

3:04–3:23 PM
**Overview of Movement Disorders Surgery in Children**
*Speaker:* A. Leland Albright, MD

3:24–3:43 PM
**Deep Brain Stimulation in Secondary Dystonia**
*Speaker:* John Harrel Honeycutt, MD

**PHILIP L. GILDENBERG S&F RESIDENT AWARD**
3:44–3:53 PM
**Multifractal Complexity in Epileptiform Hippocampal Dynamics**
*Authors:* Demitre Serletis, MD; Taufik A. Valiante, MD, PhD, FRC; Berj L. Bardakjian, PhD; Peter L. Carlen, MD, Prof (Toronto, Canada)

3:54–3:55 PM
**Discussion**

2:45–5:38 PM
**AANS/CSNS SOCIOECONOMIC SESSION**
Room 204C, Pennsylvania Convention Center
*Moderators:* Deborah L. Benzil, MD Darlene A. Lobel, MD

2:45–3:05 PM
**SYMPOSIUM**
*The Power of Congressional Hearings: Making Your Voice Heard*
*Speaker:* James R. Bean, MD

3:06–3:25 PM
**Leveraging Political Influence at the Federal Level**
*Speaker:* Gail L. Rosseau, MD

3:26–4:15 PM
**Leveraging Political Influence at the State Level**
*Speaker:* Anil Nanda, MD, FACS

3:56–4:04 PM
**The History of Hemispherectomy for Epilepsy: From Radical Anatomic Resections to Less Invasive Hemispheric Disconnections**
*Authors:* Biji Bahuleyan, MD; Shenandoah Robinson, MD, FACS; Alan R. Cohen, MD, FACS (Cleveland, OH)

4:05–4:06 PM
**Discussion**

4:18–4:26 PM
**Augmentation of Cortical Activity Following Use of a Brain-Computer Interface**
*Authors:* Kai J. Miller, PhD; Jeffrey G. Ojemann, MD (Seattle, WA)

4:27–4:28 PM
**Discussion**

4:29–4:37 PM
**A Population-Based Analysis of Morbidity and Mortality Following Surgery for Intractable Temporal Lobe Epilepsy in the United States**
*Authors:* Shearwood McClelland III, MD; Hongfei Guo, PhD; Kolawole S. Okuyemi, MD, MPH (Minneapolis, MN)

4:38–4:39 PM
**Discussion**

4:40–4:48 PM
**Complete Resection as Strongest Predictor of Seizure Freedom after Surgery for Malformations of Cortical Development**
*Authors:* Edward Chang, MD; Doris Wang, MD; Anthony Barkovich, MD; Tarik Tihan, MD; Paul Garcia, MD; Nicholas M. Barbaro, MD (San Francisco, CA)

4:49–4:50 PM
**Discussion**

4:51–4:59 PM
**Infarct Resection Improves Outcome in Malignant Supratentorial Artery Infarction**
*Authors:* Dean Kostov, MD; David Panczykowski, BS; Hilal Kanaan, MD; Brian Jankowitz, MD; Michael Horowitz, MD (Pittsburgh, PA)

5:00–5:01 PM
**Discussion**

5:02–5:10 PM
**White Matter Connectivity of Human Hypothalamus**
*Authors:* Jean-Jacques Lemaire (Clermont-Ferrand, France); Andrew J. Frew, PhD; David MacArthur, MD, MPH; Alessandra A. Gorgulho, MD; Nader Pouratian, MD; Noriko Salomon, MD (Los Angeles, CA); Clive Chen, MD (Taipei, Taiwan); Eric J. Behnke, MSc; Antonio A.F. DeSalles, MD, PhD (Los Angeles, CA)

5:11–5:12 PM
**Discussion**

5:13–5:30 PM
**Question and Answer**

4:07–4:15 PM
**Optical Detection of the Pre-Seizure State In Vivo**
*Authors:* Kiran F. Rajneesh, MD, MS; Alexander J. Lin, BS; James J. Yeh; Mike S. Hsu, MS; Devin K. Binder, MD, PhD (Irvine, CA)

4:16–4:17 PM
**Discussion**
4:16–4:35 PM
Accessing your Local Politicians
*Speaker:* Charles L. Branch Jr., MD

728  4:36–4:43 PM
**A Cost-Benefit Analysis of Craniotomy Versus Burr Hole Treatment of Chronic Subdural Hematomas**
*Authors:* Anand I. Rughani, MD; Chih Lin, BS; Richard Murray, MD; Bruce I. Tranmer, MD, FACS (Burlington, VT)

729  4:44–4:51 PM
**Comorbidities in Spine Surgery Patients and Impact on Length of Stay and Hospital Cost**
*Authors:* M. Sami Walid, MD, PhD; Edward R. M. Robinson, BA; Joe S. Robinson III, BA; Joe S. Robinson Jr, MD, FACS (Macon, GA)

730  4:52–4:59 PM
**Post-Operative Outcomes Among Older Patients with Pituitary Tumors**
*Authors:* Rachel Grossman, MD; Debraj Mukherjee, MD, MPH; Kaisorn L. Chaichana, MD; David C. Chang, PhD; Roberto Salvatori, MD; Henry Brem, MD; Alfredo Quinones-Hinojosa, MD (Baltimore, MD)

731  5:00–5:07 PM
**What Can I Do about Those Expletive CD’s**
*Authors:* Charles L. Rosen, MD, PhD (Morgantown, WV)

732  5:08–5:15 PM
**The Surgeon's Choices, and Choice of Surgeons, Affect the Cost of Single-Level Anterior Cervical Surgery**
*Authors:* Nancy E. Epstein, MD (New Hyde Park, NY); Garry Schwall, RPA-C (Mineola, NY)

733  5:16–5:23 PM
**The Effect of Call on Neurosurgery Residents' Skills: Implications for Policy Regarding Resident Call Periods**
*Authors:* Aruna Ganju, MD, FACS (Chicago, IL); Kanav Kahol, PhD (Phoenix, AZ); Peter Lee, MD; Narina Simonian, BS; Steven J. Quinn, BA (Chicago, IL); John J. Ferrara, MD (Phoenix, AZ); H. Hunt Batjer, MD, FACS (Chicago, IL)

734  5:24–5:30 PM
**MEDICAL STUDENT ABSTRACT AWARD (YNS)**
**Does Age Impact Outcome Following Subdural Hematoma Evacuation?**
*Authors:* Gina Deck, BS; James Carroll, MD; Sing Chau Ng; Jennifer Tseng, MD; Julie Pilitsis, MD, PhD (Worcester, MA)

735  5:31–5:38 PM
**Wrong-Site Craniotomy: Analysis of 35 Cases and Systems for Prevention**
*Authors:* Daniel Mendelsohn, MSc (Toronto, Canada); Fred L. Cohen, MD, JD (Palm Beach Gardens, FL); Mark Bernstein, MD, DMSc (Toronto, Canada)

736  4:19–4:27 PM
**Complications in the Surgical Treatment of 19,956 Cases of Pediatric Scoliosis: A Review of the Scoliosis Research Society Database**
*Authors:* Davis L. Reames, MD; Kai-Ming Fu, MD, PhD; Justin S. Smith, MD, PhD (Charlottesville, VA); David W. Polly Jr.,...
MD (Minneapolis, MN); Sigurd H. Berven, MD (San Francisco, CA); Joseph H. Perra, MD (Minneapolis, MN); Oheneba Boachie-Adjei, MD (New York, NY); Christopher I. Shaffrey, MD (Charlottesville, VA) Javed Shahid, MD (Danbury, CT); Jean-Valery C.E. Coumans, MD (Boston, MA); Tanvir Choudhri, MD (New York, NY); Robert F. Heary, MD (Newark, NJ)

737 4:28–4:36 PM
Spinal Surgery: An Analysis of Prevalence, Risk Factors and Medical Cost- A Claims-Based Approach
Authors: Jack E. Wilberger, MD, FACS; Patricia Gladowski, RN, MSN; John Orwat, PhD; Michael Manocchia, PhD; Sanjay Bhatia, MD (Pittsburgh, PA)

738 4:37–4:45 PM
Repeated Simulation for Posterior Spinal Instrumentation Placement Training
Author: James W. Leiphart, MD, PhD (Washington, DC)

739 4:46–4:54 PM
Outcomes after Incidental Durotomy During Lumbar Discectomy
Authors: Atman Desai, MD; Perry A. Ball, MD; Jon Lurie, MD; Sohail K. Mirza, MD; Anna N. A. Tosteson, DSc; Tor D. Tosteson, DSc; James N. Weinstein, DO (Lebanon, NH)

740 4:55–5:03 PM
Comparative Effectiveness of Ventral versus Dorsal Surgery for Cervical Spondylotic Myelopathy
Authors: Zoher Ghogawala, MD, FACS (Greenwich, CT); Edward C. Benzel, MD (Cleveland, OH); Subu N. Magge, MD (Burlington, MA); Khalid Abbed, MD (New Haven, CT); Ronald Apfelbaum, MD (Salt Lake City, UT);

2.45–5:30 PM AANS/CNS SECTION ON TUMOR I
Room 201AB, Pennsylvania Convention Center
Moderator: John A. Boockvar, MD
2:45–2:49 PM Farber Award Introductions
Jeffrey N. Bruce, MD, FACS
2:50–3:09 PM FARBER AWARD LECTURE
Speaker: Roger Stupp, MD
3:10–3:14 PM Tumor Section Award Presentations
Jonas M. Sheehan, MD
3:15–4:14 PM Symposium: Brain Tumor Immunotherapy
Moderators: Roberta P. Glick, MD
John H. Sampson, MD, PhD
3:15–3:26 PM Heat Shock Protein Vaccines
Speaker: Andrew T. Parsa, MD, PhD
3:27–3:29 PM Discussion
3:30–3:41 PM Targeting Cancer Stem Cells
Speaker: John S. Yu, MD
3:42–3:44 PM Discussion
3:45–3:56 PM STAT-3 Blockade Reversal of Stem Cell–Mediated Immune Suppression
Speaker: Amy B. Heimberger, MD
3:57–3:59 PM Discussion
4:00–4:11 PM Inhibition of Regulatory T-Cell
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Authors</th>
<th>Location</th>
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<tr>
<td>4:12–4:14 PM</td>
<td><strong>Immunosuppression in GBM</strong></td>
<td>Speaker: John H. Sampson, MD, PhD</td>
<td>TUESDAY, MAY 4</td>
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<td>4:49–4:50 PM</td>
<td><strong>Discussion</strong></td>
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<td>4:15–4:20 PM</td>
<td><strong>TUMOR SECTION BUSINESS MEETING</strong></td>
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<td>Room 201AB, Pennsylvania Convention Center</td>
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<td>4:21–4:28 PM</td>
<td><strong>INTEGRA FOUNDATION AWARD</strong></td>
<td>A Systematic Analysis of Survival Outcomes and Tumor Recurrence in 8,058 Craniopharyngiomas</td>
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<td>4:29–4:30 PM</td>
<td><strong>Question and Answer</strong></td>
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<tr>
<td>4:31–4:38 PM</td>
<td><strong>Prevalence of Malignant Meningiomas by Location</strong></td>
<td>Authors: Ari J. Kane, BA; Michael E. Sughrue, MD; Martin J. Rutkowski, BA; Gopal Shangari, AB, MS; Tarik Tihan, MD, PhD; Mitchel S. Berger, MD, FACS; Michael W. McDermott, MD; Andrew T. Parsa, MD, PhD (San Francisco, CA)</td>
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<td>4:39–4:40 PM</td>
<td><strong>Question and Answer</strong></td>
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<td>4:41–4:48 PM</td>
<td><strong>Inferior Facial Nerve Presentation Predicts Poor Outcome in Vestibular Schwannoma Surgery</strong></td>
<td>Authors: Michael E. Sughrue, MD; Rajwant Kaur, BS; Martin J. Rutkowski, BA; Ari J. Kane, BA; Lawrence H. Pitts, MD; Steven W. Cheung, MD; Isaac Yang, MD; Andrew T. Parsa, MD, PhD (San Francisco, CA)</td>
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<td>4:51–4:58 PM</td>
<td><strong>RONALD L. BITTNER AWARD</strong> The Natural History of Untreated Vestibular Schwannomas: A 20-Year Prospective Observational Study</td>
<td>Authors: Michael E. Sughrue, MD; Ari J. Kane, BA; Rajwant Kaur, BS; Martin J. Rutkowski, BA; Lawrence H. Pitts, MD; Steven W. Cheung, MD; Isaac Yang, MD; Andrew T. Parsa, MD, PhD (San Francisco, CA)</td>
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<td>4:59–5:00 PM</td>
<td><strong>Question and Answer</strong></td>
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<td>5:01–5:08 PM</td>
<td><strong>AMERICAN BRAIN TUMOR ASSOCIATION YOUNG INVESTIGATOR AWARD</strong></td>
<td>NFkBIA Deletion in Glioblastoma Multiforme</td>
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<td>5:09–5:10 PM</td>
<td><strong>Question and Answer</strong></td>
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<tr>
<td>5:11–5:18 PM</td>
<td><strong>The Utility of Pre-Operative BAERs as a Predictor of Hearing Preservation in Patients with Vestibular Schwannomas</strong></td>
<td>Authors: Erin E. Biro; Scott Meyer; Yakov Gologorsky; Donald Weisz; Kalmon Post (New York, NY)</td>
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<td>5:19–5:20 PM</td>
<td><strong>Question and Answer</strong></td>
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<td>5:21–5:28 PM</td>
<td><strong>LEKSELL RADIOSURGERY AWARD</strong> Efficacy of Facial Nerve-Sparing Microsurgery and Stereotactic Radiosurgery with Gamma Knife in Preserving Facial Nerve Function in Patients with Recurrent Acoustic Neuromas</td>
<td>Authors: Raqeeb Haque, DR; Teresa J. Wojtasiewicz, BA; Christopher P. Kellner, DR; Paul R. Gigante, DR; Mark A. Attia, BA; Brendan Huang; Steven R. Isaacson, DR; Michael B. Sisti, DR (New York, NY)</td>
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<td>5:29–5:30 PM</td>
<td><strong>Question and Answer</strong></td>
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<td>4:00–5:30 PM</td>
<td><strong>NREF RESEARCH SYMPOSIUM</strong></td>
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<td>Philadelphia Marriott Downtown Independence Ballroom, Salons I &amp; II</td>
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<td>5:11–5:18 PM</td>
<td><strong>The Utility of Pre-Operative BAERs as a Predictor of Hearing Preservation in Patients with Vestibular Schwannomas</strong></td>
<td>Authors: Erin E. Biro; Scott Meyer; Yakov Gologorsky; Donald Weisz; Kalmon Post (New York, NY)</td>
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<td>5:19–5:20 PM</td>
<td><strong>Question and Answer</strong></td>
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<tr>
<td>5:21–5:28 PM</td>
<td><strong>LEKSELL RADIOSURGERY AWARD</strong> Efficacy of Facial Nerve-Sparing Microsurgery and Stereotactic Radiosurgery with Gamma Knife in Preserving Facial Nerve Function in Patients with Recurrent Acoustic Neuromas</td>
<td>Authors: Raqeeb Haque, DR; Teresa J. Wojtasiewicz, BA; Christopher P. Kellner, DR; Paul R. Gigante, DR; Mark A. Attia, BA; Brendan Huang; Steven R. Isaacson, DR; Michael B. Sisti, DR (New York, NY)</td>
<td></td>
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<tr>
<td>5:29–5:30 PM</td>
<td><strong>Question and Answer</strong></td>
<td></td>
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</tbody>
</table>
REGISTRATION HOURS
6:30 AM–3:30 PM
Bridge Area, Pennsylvania Convention Center

EXHIBIT HOURS
9:00 AM–3:30 PM
Exhibit Halls A&B, Pennsylvania Convention Center

BEVERAGE BREAKS
Exhibit Halls A&B
9:00–9:45 AM
2:45–3:30 PM

LUNCH BREAK
1:15–2:00 PM

WOMEN IN NEUROSURGERY (WINS)
Philadelphia Marriott Downtown
Liberty Ballroom
WINS Breakfast
7:30–9:00 AM
Invitation only

BREAKFAST SEMINARS
7:30–9:30 AM
Fee: $100 each, includes breakfast

BREAKFAST FOR SEMINAR PARTICIPANTS
6:45–7:30 AM
Located in Room 103ABC, Pennsylvania Convention Center

Panelists:
Carlos A. David, MD
John A. Jane Jr., MD
Amin Kassam, MD
Sandeep M. Kunwar, MD

This seminar will review the pathologic conditions affecting the anterior cranial base and surgical strategies employed for extradural, intradural and combined compartment lesions. Panelists will discuss steps in avoidance and management of complications, demonstrate specialized (expert) surgical approaches and indicate the appropriate application of emerging technology to anterior cranial base problems.

Learning Objectives:
After completing this educational activity, participants should be able to:
* Discuss the various approaches to the anterior skull base
* List pathologies that would indicate use of an anterior skull base approach
* Explain various approaches to the anterior skull base
* List the advantages of using the endoscope for anterior skull base approaches
* Discuss current indications and limitations of endoscopic techniques

302 Cerebral Neuromonitoring
Room 202AB, Pennsylvania Convention Center
Moderator:
Odette Althea Harris, MD, MPH

Panelists:
Jeremy D. W. Greenlee, MD
Lawrence F. Marshall, MD
Shirley I. Stiver, MD, PhD
Daniel Yoshor, MD

The breakfast seminar will introduce participants to the basic biology of stem cells in the Central Nervous System (CNS). The seminar will focus on stem cell biology as it relates to CNS development, neurodegenerative disease, brain tumor formation and CNS injury. The seminar will focus on the “reality vs. hype” of stem cell based therapies for CNS injury or disease.

Learning Objectives:
After completing this educational activity, participants should be able to:
* Discuss the basic definitions and terminology related to stem cell biology and the Central Nervous System
* Summarize recent advances in the science of stem cells as it relates to
CNS injury or disease

- Discuss recent advances in stem cell based therapies for the treatment of CNS injury or disease

304

International Opportunities in Neurosurgery

Room 109B, Pennsylvania Convention Center

Moderator:
Benjamin T. White, MD

Panelists:
Atos Alves De Sousa, MD
Merwyn Bagan, MD, MPH
Armando Basso, MD
Yoko Kato, MD
Gail L. Rosseau, MD

This seminar will examine the preoperative evaluation for surgery and emphasize the changing descriptive of the epileptogenic and how this may alter new surgical therapies.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the common preoperative evaluations for surgery
- Describe what each evaluation provides
- Recognize how surgical approaches are made based on these evaluations

305

Epilepsy: New Surgical Treatment and Management Approaches

Room 203AB, Pennsylvania Convention Center

Moderator:
Lisa P. Mulligan, MD

Panelists:
Rocco A. Armonda, MD
C. Michael Cawley, MD, FACS
David M. Hasan, MD
Demetrius K. Lopes, MD
Adel M. Malek, MD, PhD
Cameron G. McDougall, MD

Free for Residents, Fellows and Medical Students

This seminar will highlight the current controversies surrounding the optional management of ruptured and unruptured intracranial aneurysms. Experts in the field will present their perspectives, experience and ideas for future study.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Analyze individual patients and make more informed treatment recommendations
- Evaluate available data and determine their significance for ruptured and unruptured intracranial aneurysms
- Assess treatment failures in intracranial aneurysms
- Assemble strategies for salvage of intracranial aneurysms

306

Coil vs. Clip for Intracranial Aneurysms

Room 201AB, Pennsylvania Convention Center

Moderator:
Meryl A. Severson III, MD

Panelists:
Rocco A. Armonda, MD
C. Michael Cawley, MD, FACS
David M. Hasan, MD
Demetrius K. Lopes, MD
Adel M. Malek, MD, PhD
Cameron G. McDougall, MD

Free for Residents, Fellows and Medical Students

This seminar will discuss the evaluation and management of peripheral nerve entrapment syndromes.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Describe the clinical presentation and diagnostic evaluation of the various entrapment syndromes
- Discuss the conservative and surgical management options of peripheral nerve entrapment syndromes

307

Peripheral Nerve Entrapment Syndromes

Room 107AB, Pennsylvania Convention Center

Moderator:
Eric L. Zager, MD

Panelists:
Allan J. Belzberg, MD
David G. Kline, MD
Shaun Thomas O’Leary, MD, PhD
Robert J. Spinner, MD, FACS
Lyndal Jun-san Yang, MD, PhD

Free for Residents, Fellows and Medical Students

This seminar will highlight past, present and future efforts of the Foundation for International Education in Neurological Surgery (FIENS), an organization dedicated to fostering neurosurgical education and training in developing countries. Current volunteer activities at FIENS sites around the world will be provided and information on how to become a FIENS volunteer (for both attending and resident neurosurgeons) will be discussed.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the current educational and material needs of neurosurgical training programs in the developing world
- Explain how to become an international neurosurgical volunteer

308

Complications and Complex Spinal Surgery: Lessons Learned

Room 113B, Pennsylvania Convention Center

Moderator:
Ziya L. Gokaslan, MD, FACS
Panelists:
Christopher Pearson Ames, MD
John Joseph Knightly, MD
Anthony H. Sin, MD
Michael Y. Wang, MD
Kevin C. Yao, MD

This seminar will utilize distinctive presentation and panel discussion of cases to analyze complications associated with complex spine surgery. An emphasis will be placed on complication avoidance and management.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Analyze the causes of surgical complications in the spine
- Formulate strategies to avoid and manage spine surgery complications and apply these principles to one’s practice

309
Spondylolisthesis: Controversies in Management

Room 113C, Pennsylvania Convention Center

Moderator:
Philip R. Weinstein, MD

Panelists:
Harel Deutsch, MD
Robert F. Heary, MD
Dennis J. Maiman, MD, PhD
Paul J. Marcotte, MD
Daniel K. Resnick, MD

A complete discussion of spondylolisthesis with emphasis on degenerative spondylolisthesis including treatment and treatment failures will be the focus of this seminar.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Recognize different types of spondylolisthesis and review the symptoms with natural history of each type
- Review indications for current treatment options of degenerative spondylolisthesis
- Recognize results and potential implications of treatment options for degenerative spondylolisthesis
- Describe complications and causes of treatment failure for degenerative spondylolisthesis
- Describe recent advances in diagnosis and treatment of degenerative spondylolisthesis

310
Cervical Spondylotic Myelopathy
Room 204AB, Pennsylvania Convention Center

Moderator:
Iain H. Kalfas, MD

Panelists:
Michael G. Kaiser, MD, FACS
Paul K. Maurer, MD
Praveen V. Mummaneni, MD
Hiroshi Nakagawa, MD
Brian R. Subach, MD, FACS

This seminar will look at how cervical myelopathy can be caused by disc herniation, hard bone spurring, congenital stenosis, OPLL and subhixations. In addition, there can be instability and deformity. Multiple cases will be presented and the participants, followed by the panel, will go over treatment options and guidelines.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Identify the various pathologies in myelopathy
- Distinguish the treatment (operative) options for cervical spondylitic myelopathy
- Review operative success/failure rates in cervical spondylitic myelopathy

311
Update in Psychosurgery
Room 201C, Pennsylvania Convention Center

Moderator:
G. Rees Cosgrove, MD, FRCSC

Panelists:
Aviva Abosch, MD, PhD
Paul S. Larson, MD
Kendall H. Lee, MD, PhD
Michael Y. Oh, MD
Parag G. Patil, MD, PhD

This seminar will address the issues of surgery for psychiatric illness. Indications for surgery and the therapeutic results for different procedures will be discussed.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss neurobiological basis of psychiatric disorders
- Discuss currently available surgical treatments
- Discuss indications of psychosurgery
- Discuss current results for psychosurgical procedures

312
Vertebral Column Tumors
Room 110B, Pennsylvania Convention Center

Moderator:
Mark H. Bilsky, MD

Panelists:
Peter C. Gerszten, MD, MPH
James S. Harrop, MD
Ehud Mendel, MD, FACS
Laurence D. Rhines, MD
Timothy C. Ryken, MD

This seminar is intended to provide an overall review of management of both primary and metastatic spinal tumors. This would include cervical evaluation of patients, as well as various surgical resection/reconstruction technologies and state-of-the art radiation therapy options.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Explain the differences in the approach to metastatic and primary...
spine tumors
- Discuss the difference between percutaneous cement augmentation and open surgery in the treatment of instability
- Discuss whether en bloc resection is the whole answer in primary bone tumors
- Explain how or if spinal radiosurgery has changed the treatment of metastatic spine tumors
- Discuss whether botox injections have helped postoperative muscle spasm and postradiation fibrosis

Moderator:
Jeffrey J. Olson, MD

Panelists:
Jeremy N. Ciporen, MD
John G. Golfinos, MD
Carl B. Heilman, MD
Joung H. Lee, MD
William Alex Vandergrift, MD

Free for Residents, Fellows and Medical Students

This seminar will address both commonly used and unusual surgical approaches to the lateral skull base and how to avoid complications.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the pathologic processes best addressed by lateral skull base surgical approaches
- Discuss the strengths and weaknesses of a lateral skull base approach for a given pathologic process
- Describe the technical aspects of standard and unusual lateral skull base approaches
- Identify the most common complications to the lateral skull base and steps to take before, during and after surgery to avoid them

Integrating Mid-Level Practitioners into Your Practice

Room 105AB, Pennsylvania Convention Center

Moderator:
Twyla Lay, NP, MS

Panelists:
Moustapha Abou-Samra, MD
Dean Barone, PA-C, MPAS
Thomas A. Kopitnik Jr., MD
Webster H. Pilcher, MD, PhD

This seminar will discuss how to integrate a mid-level practitioner into your practice from an administrative and financial standpoint.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the value a PA or NP can bring to your practice
- Discuss administrative incorporation of PAs and NPs into private and academic practice
- Describe reimbursement issues with use of a mid-level practitioner

Models for a Successful Neurosurgical Practice

Room 204C, Pennsylvania Convention Center

Moderator:
Clarence B. Watridge, MD, FACS

Panelists:
Paul Joseph Camarata, MD
Joseph S. Cheng, MD, MS
Richard Arthur Roski, MD
Craig A. Van Der Veer, MD

Building a booming and successful neurosurgical practice in this day and age is no simple task. Experts in community, academic and international neurosurgical practices will present the keys to building a successful practice while achieving quality patient care.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Explain the benefits of neurosurgical practice to hospital partnerships
- Discuss various reimbursement methodologies for partnerships
- Explore the complexities of payer contracting
- Familiarize oneself with the advances and advantages of electronic health records
- Explain the benefits of ancillary services to patients and practice

Beginning Your Academic Career: Answers to Your Questions

Room 104A, Pennsylvania Convention Center

Moderator:
Harold F. Young, MD

Panelists:
Robert J. Dempsey, MD
Jeffrey R. Leonard, MD
Bruce Tranmer, MD

Free for Residents, Fellows and Medical Students

An open forum for residents and faculty in academic programs seeking advice on how to advance their careers. Faculty will include prominent heads of academic programs. Audience question format is oral or written.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Explain future trends in academia
- Discuss career management in academia with experts
- Discuss the future of academic medicine
317
Neuromodulation for Chronic Pain
Room 113A, Pennsylvania Convention Center
Moderator:
Christopher J. Winfree, MD
Panelists:
George T. Mandibury, MD
Alon Y. Mogilner, MD, PhD
Julie Georgia Pilitsis, MD, PhD
Joshua M. Rosenow, MD
Donald M. Whiting, MD
Free for Residents, Fellows and Medical Students
This seminar is intended for surgeons in general neurosurgical practice who follow and evaluate children with hydrocephalus and CSF shunts.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Conduct a focused history and examination of the child with a CSF shunt
- Plan a sensitive, specific and efficient diagnostic evaluation of symptoms compatible with CSF shunt failure
- Perform critical assessment of brain imaging studies in children with CSF shunts
- Select appropriate dispositions of children with shunts visiting the emergency department and recognize evolving, critical situations that require aggressive management
- Minimize risk of complications of management decisions and surgical technique

320
Unexpected Intraoperative Vascular Complications During Intracranial Surgery—What to Do Next: A Video Presentation
Room 112B, Pennsylvania Convention Center
Moderator:
Aaron A. Cohen-Gadol, MD
Panelists:
Johnny B. Delashaw Jr., MD
Lorenzo F. Munoz, MD
Troy D. Payner, MD
Duke S. Samson, MD
The seminar will include a review of 10-15 surgical videos of the most challenging moments in cerebrovascular and skull base surgery involving unexpected vascular injury (intraop aneurysm rupture, carotid injury during transsphenoidal surgery, etc.) The panelists will discuss their management scheme. The final outcome based upon the management of the surgeon at the time will be reviewed.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Evaluate and prevent techniques that would place vascular structures at risk during intracranial surgery
- Manage unexpected vascular injuries during cerebrovascular and skull base surgery
Discuss various ramifications associated with methods to repair intraoperative vascular injuries

321

Maintenance of Certification: Current Status and Trends

Room 112A, Pennsylvania Convention Center

Moderator:
Nelson M. Oyesiku, MD, PhD

Panelists:
Charles L. Branch Jr., MD
Erica D. Cleveland
Warren R. Selman, MD

The panelists will describe and discuss the MOC process, current standards and future implementation of MOC. Current and future ABNS Diplomates will find the session instructive.

Learning Objectives:
After completing this educational activity, participants should be able to:
- Discuss the rationale and process of MOC and demonstrate how to collect data from their clinical practice to meet the requirements of MOC
- Describe the current standards and future trends of the MOC process

PLENARY SESSION III

9:45 AM–1:00 PM

Ballroom AB, Pennsylvania Convention Center

Moderators:
Nicholas M. Barbaro, MD
Carl B. Heilman, MD

9:45–10:04 AM

LOUISE EISENHARDT LECTURE

Introduced By:
Karin M. Muraszko, MD

Diversity and the Next 25 Years: Are We Moving Fast Enough

Speaker:
Mary Sue Coleman, PhD

800 10:05–10:19 AM

STRYKER NEURO-ONCOLOGY AWARD
Preoperative ACTH Stimulation Test and Immediate Postoperative Cortisol Levels Accurately Predict Postoperative Hypothalamic-Pituitary-Adrenal Axis Function after Transsphenoidal Surgery

Authors:
Nicholas F. Marko, MD; Amir H. Hamrahian, MD; Robert J. Weil, MD (Cleveland, OH)

Discussant:
Edward R. Laws, Jr., MD

801 10:20–10:34 AM

Complications of Gamma Knife Surgery in a Series of 1400 Patients with Cerebral AVMs

Authors:
Chun-Po Yen, MD; Jason P. Sheehan, MD, PhD; Ladislau Steiner, MD, PhD (Charlottesville, VA)

Discussant:
Bruce E. Pollock, MD

802 10:35–10:49 AM

Endoscopic Third Ventriculostomy in Adults: A Technique to Deal with the Neural (Opaque) Floor

Authors:
Walter Grand, MD; Jody Leonardo, MD (Buffalo, NY)

Discussant:
Alan R. Cohen, MD, FACS

803 10:50–11:04 AM

Optimal Management of Anticoagulation Following Central Nervous System Hemorrhage in Patients with High Thromboembolic Risk

Authors:
Gregory W. Hawryluk, MD; James Austin, MSc; Julio Furlan, MD; Jang Bo Lee, MD; Cian O’Kelly, MD, MSc; Michael G. Fehlings, MD, PhD, (Toronto, Canada)

Discussant:
Nicholas M. Barbaro, MD

11:04–11:09 AM

HUMANITARIAN AWARD

Presented By:
Christopher M. Loftus, MD, FACS
Recipients:
Timir Banerjee, MD

804 11:10–11:24 AM

Cortical Biopsy and Empirical Post-Operative Shunt Programming: A Novel Approach to Idiopathic Normal Pressure Hydrocephalus

Authors:
Joel A. Bauman, MD; Peter Madsen, BS; Roy Hamilton, MD, MS; Sunil Patel, MS; Anuj Basil, MD (Philadelphia, PA); Eric M. Jackson, MD (Boston, MA); Edward B. Lee, MD; Joanna Lopinto, BSN, RN; Steven E. Arnold, MD; Christopher M. Clark, MD; Leslie M. Shaw, MD; John Q. Trojanowski, MD, PhD; M S. Grady, MD (Philadelphia, PA)

Discussant:
Gail L. Rosseau, MD
WEDNESDAY, MAY 5

**805** 11:25–11:39 AM

High-Dose Intra-Arterial Verapamil for the Treatment of Cerebral Vasospasm after Subarachnoid Hemorrhage: Prolonged Effects on Hemodynamic Parameters and Brain Metabolism

*Authors:*
Robert M. Stuart, MD; Raimund Helbok, MD; Pedro Kurtz, MD; Michael Schmidt, PhD; Luis Fernandez, MD; Kiwon Lee, MD; Neeraj Badjatia, MD; Stephan Mayer, MD; Sean Lavine, MD; Philip Meyers, MD; Jan Claassen, MD (New York, NY)

*Discussant:*
Neal F. Kassell, MD

**806** 11:40–11:54 AM

Long-Term Outcome after Less Invasive Surgery for Decompression of Lumbar Stenosis – A Randomized Comparison of Unilateral Laminotomy, Bilateral Laminotomy and Laminectomy

*Authors:*
Claudius Thome, MD; Gerrit A. Schubert, MD; Reinhard Stier; Aldemar A. Hegewald, MD; Peter Schmiedek, MD (Mannheim, Germany)

*Discussant:*
Charles L. Branch Jr., MD

**807** 11:55 AM–12:09 PM

NATIONAL BRAIN TUMOR FOUNDATION MAHALEY AWARD

The Value of Glioblastoma Extent of Resection: A Volumetric Analysis of 500 Patients

*Authors:*
Nader Sanai, MD (Phoenix, AZ); Zaman Mirzadeh, MD, PhD; Mei-Yin Polley, PhD; Mitchel S. Berger, MD (San Francisco, CA)

*Discussant:*
Philip H. Gutin, MD

**808** 12:10–12:24 PM

Complications of Transforaminal Lumbar Interbody Fusion: A Single Center Experience

*Authors:*
Matthew Tormenti, MD; Matthew B. Maserati, MD; Christopher M. Bonfield, MD; Peter C. Gerszen, MD; John J. Moosy, MD; Adam S. Kanter, MD; Richard M. Spiro, MD; David O. Okonkwo, MD, PhD (Pittsburgh, PA)

*Discussant:*
R. Patrick Jacob, MD, FACS

**809** 12:25–12:39 PM

INTERNATIONAL ABSTRACT AWARD

Endovascular Treatment of Ruptured Intracranial Aneurysms with Pipeline™ Flow-Diverter Stent: Pros and Cons

*Authors:*
Pedro Lylyk, MD, Prof; Boris Pabon, MD; Angel Ferrario, MD; Esteban Scrivano, MD; Javier Lundquist, MD; Rosana Ceratto, MD; Rodolfo Nella, MD (Buenos Aires, Argentina)

*Discussant:*
Rocco A. Armonda, MD

**2:45–5:30 PM**

AANS SECTION ON HISTORY

Room 203AB, Pennsylvania Convention Center

*Moderators:*
Charles Joseph Prestigiacomo, MD, FACS
Mark C. Preul, MD

2:45–4:05 PM

**SYMPOSIUM**

History of Philadelphia Neuroscience

*Moderators:*
James T. Goodrich, MD
Chris A. Sloffer, MD, MBA

2:45–3:04 PM

Dr. Frazier: Pioneer in Philadelphia Neurosurgery

*Speaker:*
Eugene S. Flamm, MD

3:05–3:24 PM

The Contributions of W.W. Keen

*Speaker:*
James L. Stone, MD, FACS

3:25–3:44 PM

University of Pennsylvania Neurosurgery History

*Speaker:*
John A. Boockvar, MD

3:45–4:04 PM

Discussion

**801** 12:40–1:00 PM

THEODORE KURZE LECTURE

*Introduced By:*
Troy M. Tippett, MD

*Microsurgical Anatomy and Safe, Gentle and Accurate Neurosurgery*

*Speaker:*
Albert L. Rhoton Jr., MD

**501**

Endovascular Management of Ischemic and Hemorrhagic Stroke

Room 113C, Pennsylvania Convention Center
VESALIUS AWARD
The Discovery of the Pyramidal Neurons: Vladimir Betz and a New Era of Neuroscience

Authors:
Sergiy V. Kushchayev, MD (Phoenix, AZ); Vitaiy I. Tsymbaliuk, MD; Viktor G. Cherkasov, MD (Kiev, Ukraine); Volker K.H. Sonntag, MD; Robert F. Spetzler, MD; Mark C. Preul, MD (Phoenix, AZ)

Josef Klingler: Modeling of White Matter Tracts and an Anatomic Guide for Stereotactic Neurosurgery

Authors:
Abhishek R. Agrawal, MD; Aman Deep, MD (Phoenix, AZ); Hermann Wichers, PhD; Annetrudi Kress, MD, PhD; Josef P. Kapfhammer, MD (Basel, Switzerland); Volker K.H. Sonntag, MD; Robert F. Spetzler, MD; Mark C. Preul, MD (Phoenix, AZ)

Sushruta: Surgeon of Ancient India

Authors:
Kiran F. Rajneesh, MD, MS; Alexander J. Lin, BS (Irvine, CA); Deepali N. Tukaye, MD, PhD (Baltimore, MD); James J. Yeh; Huzaifa Hakimuddin; Devin K. Binder, MD, PhD (Irvine, CA)

John Hunter’s Giant

Authors:
James L. Stone, MD, FACS (Chicago, IL); James T. Goodrich, MD, PhD (New York, NY); George R. Cybulski, MD, FACS (Chicago, IL)

Harvey Cushing’s Contributions to Mapping the Motor and Sensory Cortex 1896-1912

Authors:
Courtney Pendleton, BS; Hasan A. Zaidi, BS; Shaan Raza, MD; Kaisorn Chaichana, MD; Benjamin S. Carson, MD (Baltimore, MD); Aaron A. Cohen-Gadol, MD, MSc (Indianapolis, IN); Alfredo Quinones-Hinojosa, MD (Baltimore, MD)

The Early History of Pituitary Surgery for Cushing’s Disease

Authors:
Gautam U. Mehta, MS (Bethesda, MD); Edward H. Oldfield, MD, FACS (Charlottesville, VA)

The Early Professionalization of Neurosurgery: Cushing’s and Sach’s “Neuro-Surgical Club”

Authors:
Mark C. Preul, MD; Daniel D. Cavalcanti, MD; Robert W. Ryan, MD (Phoenix, AZ); Russel H. Patterson Jr., MD (New York, NY)

Intraneural Ganglia: From Curiosity to Controversy to Characterization

Authors:
Robert J. Spinner, MD; Marie-Noelle Hebert-Blouin, MD; Huan Wang, MD; Diana Angius, MD; Janine Hegarty (Rochester, MN)

Question and Answer

WILLIAM SWEET AWARD
Microvascular Decompression after Failed Gamma Knife Radiosurgery for Trigeminal Neuralgia

Authors:
Raymond F. Sekula, MD; Andrew M. Frederickson, BS; Peter J. Jannetta, MD; Sanjay Bhatia, MD; Matthew R. Quigley, MD (Pittsburgh, PA)

Local and Sustained Anticytokine Delivery Reverses Gait and Sensory Changes in Experimental Disc Herniation Radiculopathy

Authors:
Mohammed F. Shamji, MD, PhD (Ottawa, Canada); Kyle D. Allen, PhD; Mostafa Gabr, MD; Michael Sinclair, BS; Brian Mata, MD; Dana L. Nettles, PhD; Jun Chen, PhD; Liaofang Jing, MS; William J. Richardson, MD; Lori A. Setton, PhD (Durham, NC)

Commissural Myelotomy in the Treatment of Intractable Visceral Pain: Technique and Outcomes

Authors:
Ashwin Viswanathan, MD; Allen W. Burton, MD; Ian McCutcheon, MD (Houston, TX)
WEDNESDAY, MAY 5

821 3:18–3:26 PM

**Posterior Fossa Exploration for Trigeminal Neuralgia Patients Older than 70 Years of Age**

Authors: Bruce E. Pollock, MD; Terry K. Schiefer, MD; Kathy J. Stien, RN (Rochester, MN)

822 3:27–3:35 PM

**Minimally Invasive Outpatient Implantation of Spinal Cord Stimulation Lamínecomy Electrodes: An Alternative to Percutaneous Placement?**

Authors: Jonathan P. Miller, MD; Alia Hdeib, MD (Cleveland, OH)

823 3:36–3:44 PM

**Neuropathic Pain Mechanisms in the Dorsal Root Ganglia**

Authors: Gabriel C. Tender, MD; Jianguo Cui, MD, PhD (New Orleans, LA)

3:45 AM–4:30 PM

**LOESER LECTURE**

Neurostimulation of the Peripheral Nervous System. What is Old and What is New?

**Speaker:** Giancarlo Barolat, MD

4:31–5:15 PM

**Complex Regional Pain Syndrome: Insights on Pathophysiology and Treatment**

**Speaker:** Robert J. Schwartzman, MD

5:16–5:30 PM

**Question and Answer**

2:45–5:30 PM

**AANS/CNS SECTION ON PEDIATRICS**

Room 201C, Pennsylvania Convention Center

**Moderators:**

George I. Jallo, MD

David W. Pincus, MD, PhD

2:45–3:30 PM

**DONALD D. MATSON LECTURE**

**Introduced By:** Ann-Christine Duhaime, MD

**Genetic Control of Brain Development**

**Speaker:** Jeffrey Golden, MD

3:31–3:38 PM

**KENNETH SHULMAN AWARD**

Cell Proliferation and Neuronal Migration after Closed Head Injury in the Immature Piglet

**Recipient:** Symeon Missios, MD

3:39–3:40 PM

**Invited Response by Mark M. Souweidane, MD**

3:41–3:48 PM

**HYDROCEPHALUS AWARD**

Immortalization and Functional Characterization of Rat Arachnoid Cells

**Recipient:** Christopher G. Janson, MD

3:49–3:50 PM

**Invited Response by Joseph R. Madsen, MD**

824 3:51–3:58 PM

**Predictors for Outcome after Surgery for Chiari Malformation Type 1**

Authors: Katherine E. Hekman, BA; Leonardo Aliagra, BA; Aman Gaurav-Luther, BS; David M. Frim, MD, PhD (Chicago, IL)

3:59–4:00

**Invited Response by George I. Jallo, MD**

825 4:01–4:08 PM

**WINS LOUISE EISENHARDT RECIPIENT**

Pseudotumor Cerebri after Surgical Remission of Cushing’s Disease

Authors: Erin Kiehna, MD (Charlottesville, VA); Meg Keil, RN; Maya Lodish, MD; Constantine Stratakis, MD (Bethesda, MD); Edward H. Oldfield, MD (Charlottesville, VA)

4:09–4:10 PM

**Invited Response by Alan R. Cohen, MD, FACS**

826 4:11–4:18 PM

Results from a 20-Year Experience of Pediatric Arteriovenous Malformation Radiosurgery

Authors: Bruce E. Pollock, MD; Michael J. Link, MD; Paula J. Schomberg, MD (Rochester, MN)

4:19–4:20 PM

**Invited Response by Bradley E. Weprin, MD**

827 4:21–4:28 PM

**Surgical Management for Cranial Congenital Dermal Sinus**

Authors: Chiachien J. Wang, PhD; Tien T. Nguyen, MD; Mark D. Krieger, MD; J. Gordon McComb, MD (Los Angeles, CA)

4:29–4:30 PM

**Invited Response by Bruce A. Kaufman, MD, FACS**
Minimally Invasive Endoscopic Transventricular Hemispherotomy for Medically Intractable Epilepsy – A New Approach and Cadaveric Demonstration

Authors:
Biji Bahuleyan, MD; Sunil Manjila, MD; Alan R. Cohen, MD, FACS (Cleveland, OH)

Brain Tumors in the First Year of Life - The CHEO Experience

Authors:
Mohammed F. Shamji, MD, PhD; Naveen Mehrotra, MD; Michael Vassilyadi, MD; Enrique Ventureyra, MD (Ottawa, Canada)

Complications in Pediatric Spine Surgery: A Comparative Survey of the Perceptions of Surgeons, Caregivers, and Patients

Authors:
Shobhan H. Vachhrajani, MD (Toronto, Canada); Daniel H. Fulkerson, MD; Alison Brayton, RN (Houston, TX); Abhaya V. Kulkarni, MD, PhD (Toronto, Canada); Andrew H. Jea, MD (Houston, TX)

Endoscopic Lamina Terminalis Fenestration for Treatment of Obstructive Hydrocephalus Following Failed ETV

Authors:
Amer Khalil, MD; Xiao Di, MD, PhD (Cleveland, OH)

Pediatric Spine Injuries (Report of 43 Cases)

Authors:
Mohammad R. Ehsaei, MD (Mashhad, Iran)

Multifactorial Etiology in Spontaneous Neonatal Intracranial Hemorrhage

Authors:
Selfy Oswari, MD; M. Zafrullah Arifin, MD; Akhmad Imran, MD (Bandung, Indonesia)
5:19–5:30 PM
Open Discussion

Role of Surgical Resection of Malignant Peripheral Nerve Sheath Tumors in Patients with NF1

Authors:
Gavin P. Dunn, MD, PhD; Scott R. Plotkin, MD, PhD; Ziv Williams, MD (Boston, MA)
4:53–4:54 PM
Discussion

The Surgical Treatment of Posttraumatic Brachial Plexus Lesions – A Personal Experience of 78 Cases

Authors:
Sumit Sinha, MD; Ashok K. Mahapatra, MD; Mahesh C. Misra, MD (New Delhi, India)
5:02–5:03 PM
Discussion

Outcome after Delayed Oberlin Transfer in Brachial Plexus Injury

Authors:
Manish S. Sharma, MS; Gopal Sedain, MS; Bhawani S. Sharma, MS (New Delhi, India)
5:11–5:12 PM  
Discussion

837  5:13–5:19 PM  
Use of Ultrasonography in Ulnar Nerve Entrapment Surgery-A Prospective Study  
Authors:  
Hakan Simsek, MD; Ahmet M. Kutlay, MD; Ahmet Çolak, MD, Prof; Serdar Kaya, MD; Mehmet N. Demircan, MD, Prof (Istanbul, Turkey)

5:20–5:21 PM  
Discussion

838  5:22–5:28 PM  
Matching of Motor-Sensory Modality in the Rodent Femoral Nerve Model Shows No Enhanced Effect on Long-Term Peripheral Nerve Regeneration  
Authors:  
Wilson Z. Ray, MD; Philip J. Johnson, PhD; David H. Kawamura, MD; Thomas H. Tung, MD; Susan E. Mackinnon, MD (St Louis, MO)

5:29–5:30 PM  
Discussion

2:45–5:30 PM  
AANS/CNS SECTION ON TUMOR II  
Room 201AB, Pennsylvania Convention Center  
Moderator:  
Bob S. Carter, MD, PhD

2:45–4:00 PM  
SYMPOSIUM  
2:45–2:53 PM  
Introduction to Brain Mets Guidelines  
Speaker:  
Steven N. Kalkanis, MD

2:54–3:08 PM  
The Evidence for Whole Brain Radiation Therapy Alone and in the Setting of Surgery and Radiosurgery  
Speaker:  
Mark E. Linskey, MD

3:09–3:23 PM  
The Evidence for Focused Therapies vs. Whole Brain Radiation Therapy  
Speaker:  
Minesh P. Mehta, MD

3:24–3:34 PM  
Medical Management – Chemo, Steroids, Anticonvulsants  
Speaker:  
Timothy C. Ryken, MD

3:35–3:44 PM  
Recurrent Disease and Emerging/Novel Therapies  
Speaker:  
Charles S. Cobbs, MD

3:45–3:49 PM  
Conclusion  
Speaker:  
Steven N. Kalkanis, MD

3:50–4:00 PM  
Question and Answer

839  4:01–4:10 PM  
High Rates of Language Deficit Following Parietal Glioma Resection  
Authors:  
Nader Sanai, MD (Phoenix, CA); Juan Martino, MD; E.J. Hendricks, BS; Mitchel S. Berger, MD, FACS (San Francisco, CA)

840  4:11–4:20 PM  
Long-Term Outcomes Following Gamma Knife Radiosurgery in the Treatment of Nonsecretory Pituitary Adenomas  
Authors:  
Rupa Gopalan, BS; Bhuvaneswara Basina, MD; Mohamed A. Khaled, MD; Jason P. Sheehan, MD, PhD (Charlottesville, VA)

841  4:21–4:30 PM  
Impact of Surgical Methodology – Piecemeal versus En Bloc Resection – On the Early Neurological and Functional Outcomes of Patients with a Newly Diagnosed Single Brain Metastasis  
Authors:  
Akash J. Patel, MD; Dima Suki, PhD; Benjamin D. Fox, MD; Wael Hassaneen, MD; Mustafa Aziz Hatiboglu, MD; Raymond Sawaya, MD (Houston, TX)

842  4:31–4:40 PM  
Quantification of Glioma Removal by Intraoperative High-Field Magnetic Resonance Imaging  
Authors:  
Daniela Kuhnt, MD (Marburg, Germany); Sven Martin Schlafer; Oliver Ganslandt, PhD, MD; Michael Buchfelder, PhD, MD (Erlangen, Germany); Christopher Nimsky, PhD, MD (Marburg, Germany)

843  4:41–4:50 PM  
SETA – Simplified Endoscopic Transnasal Approach  
Authors:  
Yvonne Mondorf, MD; Katja Plasmans, MD; Michael Robert Gaab, MD, PhD (Hannover, Germany)

844  4:51–5:00 PM  
PREUSS AWARD  
Modeling Angiogenesis and Therapeutic Response to Notch Inhibition in a Novel 3-D Organotypic Culture System of Glioblastoma  
Authors:  
Viviane S. Tabar, MD; Rong Wang, PhD; Fumiko Shimizu, PhD; Georgia Panagiotakos, BS; Maartje van der Heijden; Tamara Major, PhD; Jayanthi Menon, MS; Koos Hovinga, MD (New York, NY)
WEDNESDAY, MAY 5

845  5:01–5:10 PM

Hypofractionated High-Dose Irradiation Using IMRT Planned by Methionine PET for the Treatment of Glioblastoma Multiforme

Authors:
Kazuhiro Miwa, PhD, MD; Jun Shinoda, MD, PhD; Masayuki Matsuo, MD, PhD; Mikito Yamada, MD, PhD; Takeshi Ito, MD, PhD; Kazutoshi Yokoyama, MD, PhD; Jitsuhito Yamada, MD, PhD (Minokamo, Japan); Hirohito Yano, MD, PhD; Toru Iwama, MD, PhD (Gifu, Japan)

846  5:11–5:20 PM

Venous Infarction after Meningioma Surgery: Incidence, Risk Factors, and Outcome in 705 Patients

Authors:
Michael E. Sughrue, MD; Martin J. Rutkowski, BA; Gopal Shangari, BA; Shanna Fang, BS; Andrew T. Parsa, MD, PhD; Mitchel S. Berger, MD, FACS; Michael W. McDermott, MD (San Francisco, CA)

847  5:21–5:30 PM

Clinical Outcomes after Surgical Resection of Lesions in Eloquent Cortex using Functional MRI

Authors:
Mark P. Garrett, MD; David Wilson, MD; Leslie Baxter, PhD; Kris Smith, MD (Phoenix, AZ)
**AANS HEADQUARTERS OFFICE**
Room 304, Pennsylvania Convention Center  
Phone: 215-418-2400  

Hours:  
Saturday, May 1 8:00 AM – 5:00 PM  
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**AANS PRESS ROOM**
Room 303A, Pennsylvania Convention Center  
Phone: 215-418-2409  
No outside materials for distribution and no sharing of lists will be allowed.  

Hours:  
Monday, May 3 8:30 AM – 5:00 PM  
Tuesday, May 4 8:30 AM – 5:00 PM  
Wednesday, May 5 8:30 AM – 5:00 PM

**AANS SPEAKER READY ROOM**
Room 106AB, Pennsylvania Convention Center  
Phone: 215-418-2406  

Hours:  
Saturday, May 1 7:00 AM – 5:00 PM  
Sunday, May 2 6:00 AM – 4:00 PM  
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Wednesday, May 5 6:30 AM – 5:00 PM

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The Pennsylvania Convention Center is committed to accommodating the needs of individuals with disabilities in accordance with the Americans with Disabilities Act. Elevators are located in various areas around the Pennsylvania Convention Center, including the exhibit hall, and all the meeting rooms are wheelchair accessible. There is designated parking and services for the sight and hearing impaired. Wheelchairs and scooters are available for a fee and can be reserved prior to your arrival by contacting Scootaround at (888) 441-7575 or visit their web site at www.scootaround.com. Daily and weekly rates are available and include delivery and pickup to and from your hotel or the convention center.

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Badges are required to enter all scientific sessions and the exhibit hall. Badges are distributed at the time of registration. Participants of the 2010 AANS 78th Annual Meeting are identified by the following badge colors:

- **Physician Attendee**: Blue  
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- **Press**: Gray  
- **Exhibitor**: Yellow  
- **AANS Staff, Vendors & Partners**: Green

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AANS wishes to take those steps to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than other individuals because of the absence of auxiliary aids and services. If you require any of the auxiliary aids or services identified in the Americans with Disabilities Act in order to attend any AANS program, please contact the Meeting Services Department at aansam@aans.org or call (888) 566-2267, extension 529.

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Attire for the AANS 78th Annual Meeting is business or business casual depending on the nature of the event or unless otherwise indicated.

**BAGGAGE AND COAT CHECK**
Baggage and coat check will be available outside Room 201B during the following times:

- **Tuesday, May 4**: 6:00 AM – 5:45 PM  
- **Wednesday, May 5**: 6:00 AM – 5:45 PM  

A $2 fee will be charged to the attendee for each item checked.

**BEVERAGE BREAKS**
For all attendees during official show dates (Mon. May 3 – Wed. May 5)

- **Exhibit Halls AB**: 9:00 – 9:45 AM  
- **Exhibit Halls AB**: 2:45 – 3:30 PM

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Print your boarding pass before you leave for the airport! The Boarding Pass Kiosk in Concourse A, Level 2 across from the entrance to Hall A.

**BUSINESS CENTER**
Level 2, Pennsylvania Convention Center  
Tel: 215-418-2326 or Gift Shop  
Tel: 215-418-4931  

Hours:  
Friday, April 30 8:30 AM – 7:30 PM  
Saturday, May 1 7:00 AM – 6:00 PM  
Sunday, May 2 7:00 AM – 7:00 PM  
Monday, May 3 7:00 AM – 5:00 PM  
Tuesday, May 4 8:30 AM – 5:30 PM  
Wednesday, May 5 8:30 AM – 5:30 PM

**CELL PHONES AND PAGERS**
As a courtesy to other attendees and speakers, the AANS ask that you turn off or put your cell phone or pager on silence during all scientific sessions. If you must make a call, please step outside the meeting room.
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The AANS is not affiliated with and is not endorsing the services of these companies. Note: Children under the age of 18 are not permitted in the Exhibit Hall except for the Opening Reception.

CLIMATE/TIME ZONE
The average high temperature in Philadelphia for May is 72 degrees Fahrenheit, with the low averaging 57 degrees Fahrenheit, making the days pleasant and the evenings comfortable. Philadelphia is located in the Eastern Time Zone. Daylight Savings Time will be instituted during this meeting.

CME SELF-REPORTING STATIONS
AANS Resource Center, Exhibit Hall AB, Booth #1725 and Concourse A

DENVER CONVENTION AND VISITORS BUREAU – AANS ANNUAL MEETING 2011
Grand Hall, Near Bridge to Concourse A

E-MAIL STATIONS
AANS Resource Center, Exhibit Hall AB, Booth #1725 and Concourse A, Pennsylvania Convention Center – free for all medical attendees only.

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Pick up a courtesy phone in the Pennsylvania Convention Center and dial “4911” from any house phone or 215-418-4911 from your cell phone.

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Exhibit Halls AB, Pennsylvania Convention Center
Monday, May 3 9:00 AM–4:00 PM
Tuesday, May 4 9:00 AM–4:00 PM
Wednesday, May 5 9:00 AM–3:30 PM

FIRST AID ROOM
Back of Exhibit Hall B, Pennsylvania Convention Center
The station will be staffed by an EMT.
Phone: 215-418-4911 – PCAA Public Safety Command Station

FUTURE MEETINGS
79TH AANS Annual Meeting
Denver, CO
April 9-13, 2011
The Denver Convention and Visitors Bureau will be available to answer your questions and to supply you with area information. They are located in the Grand Hall, near the bridge entrance to Concourse A of the Pennsylvania Convention Center.

80TH AANS Annual Meeting
Miami, FL
April 14-18, 2012

81ST AANS Annual Meeting
New Orleans, LA
April 27-May 1, 2013

82ND AANS Annual Meeting
San Francisco, CA
April 5-9, 2014

GUEST HOSPITALITY SUITE RETIRED
This year’s Annual Meeting Committee re-evaluated the purpose of the Guest Hospitality Suite and decided to eliminate it this year. Spouses and guests with a badge may visit the exhibit hall throughout the day, enjoying a beverage during the beverage break time period and attend any of the Plenary Sessions throughout the week.

HEADQUARTERS HOTEL
Philadelphia Marriott Downtown
1201 Market Street
Philadelphia, PA 19107
Phone: 215-625-2900

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The Overlook, Level 3, Pennsylvania Convention Center or any Marshal® designated with a yellow arm band.

INFORMATION BOOTH
Grand Hall, Near Bridge to Concourse A

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Show Management Security
AF1 Show Office, Exhibit Hall A, Pennsylvania Convention Center

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Pennsylvania Convention Center
1101 Arch Street
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www.paconvention.com

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Smoking is not permitted at any of the official AANS events, the Pennsylvania Convention Center and the majority of the official AANS hotels. In addition, smoking is prohibited by Pennsylvania state law in all bars, nightclubs and restaurants.

PC BREAKS – AM & PM
Location: Across from Room 108AB and Outside Room 201B
Saturday, May 1
9:45 – 10:15 AM 2:45 – 3:15 PM
Sunday, May 2
8:45 – 9:15 AM 1:45 – 2:15 PM

RECORDED PRESENTATIONS
RESTAURANT RESERVATION DESK
Pennsylvania Convention Center, 12th & Arch Street Entrance, NW Corner
Phone: 215-418-2140 or 2141

Hours:
Friday, April 30  3:00 – 7:00 PM
Saturday, May 1  9:00 AM – 6:00 PM
Sunday, May 2  9:00 AM – 6:00 PM
Monday, May 3  9:00 AM – 6:00 PM
Tuesday, May 4  9:00 AM – 6:00 PM
Wednesday, May 5  9:00 AM – 4:00 PM

You may also click on the “Open Table” icon on your iPod touch®. Open Table is an iPod touch application that allows you to make free restaurant reservations at over 11,000 Open Table-enabled restaurants. Specify your dining date, desired time and party size to view available tables at nearby restaurants listed by proximity or plotted on an interactive map. Making reservations has never been easier!

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For your safety, the AANS recommends removing your badge when walking throughout the city of Philadelphia. In addition, please refrain from walking by yourself in the city streets at night.

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The AANS will provide shuttle service at regular intervals between the Pennsylvania Convention Center and the following hotels:

Route A – Pink Route –
Every 12–24 minutes
Embassy Suites – 18th Street side at driveway
Four Seasons – Across 18th Street from lobby

Route B – Green Route –
Every 10–20 minutes
Crowne Plaza – Curbside on Market at Valet entrance
Ritz Carlton – Across 15th Street at Penn Square
Doubletree – Locust Street side of hotel

All other official AANS annual meeting hotels are within walking distance. Please note: A full schedule will be made available at the above hotels and in registration.

TAPING AND PHOTOGRAPHY PROHIBITED
Audio-taping, videotaping or photography by individuals is strictly prohibited in all scientific sessions.

TICKET SALES, TOURS AND ATTRACTIONS
Tickets for the Opening Reception, Practical Clinics, Breakfast Seminars, Mid-level Practitioner Lunch Session, YNS Lunch Session (No Charge), International Reception (No Charge) and the History Section Dinner are available for purchase (if applicable) in Registration located on the Bridge to Grand Hall of the Pennsylvania Convention Center.

The AANS Tour Desk is located at the Philadelphia Marriott Downtown Hotel lobby, near Starbucks. Attendees can sign up and purchase tickets for guest tours and select optional evening events. All tours will depart from 12th Street side of the Philadelphia Marriott Hotel.

Hours:
Saturday, May 1  12:00 – 4:00 PM
Sunday, May 2  7:30 AM – 4:00 PM
Monday, May 3  7:30 AM – 4:00 PM
Tuesday, May 4  7:30 AM – 1:00 PM

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Car Rental
AANS is pleased to provide members the opportunity for car rental savings through Alamo Rent-a-Car in conjunction with the AANS Annual Meeting. Alamo provides AANS members year round discounts off car rentals at 138 locations in North America and 275 overseas locations. In addition, members are given the opportunity to earn valuable miles, credits or points with airlines and hotels through Alamo’s partnership with most major airlines and hotel partners. To request your year-round discount, call Alamo toll-free at the number listed below or visit online at www.alamo.com. At the time of reservation, don’t forget to identify yourself as an AANS member and provide the identification information below.

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Special rates have been negotiated for AANS 78th Annual Meeting participants with LimoLink, a first-class comprehensive worldwide chauffeured ground solution. Your average cost to or from the Philadelphia International Airport and the downtown hotels is approximately $100 per car (sedan) each way. Pricing includes base rate, gratuity, parking and meet & greet service in baggage claim. To ensure receipt of the AANS discounted rate, attendees must use Reference Code #1203135 when making the reservation.

All reservations must be secured with a major credit card and it is recommended that you have your flight itinerary accessible when calling. For reservations call 1-888-811-4319 or visit www.limolink.com. Please note: This website also allows you to edit and cancel reservations in addition to the ability to review your invoices.

SEPTA R1
The SEPTA Airport Rail Line R1 connects the airport with the Center City and includes stops at the 30th Street Station (Amtrak) and Suburban Station. One-way fare is $6 in advance and $7 onboard. For more information, stop at one of the information booths in the airport terminals, call 215-937-6937 or visit www.septa.org.

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Taxis are readily available at the Philadelphia International Airport and near the convention center. Fares vary based on traffic and road conditions. The estimated one-way fare to or from the Center City is $29.

City Cab (215) 492-6500; www.philly.com
PHL Taxi (215) 232-2000; www.phltaxi.net

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Philadelphia is served by Amtrak (800-USA-RAIL, 800-872-7245, or www.amtrak.com) operating rail service along the Northeast Corridor from Boston to Washington, D.C., and from New Haven, Connecticut to Springfield, Massachusetts. Visitors have access to intercity trains operating over the corridor, including high-speed Metroliners and Acela Express service between Boston and Washington, D.C. Intercity service is provided for many points south and west of Center City. Amtrak’s 30th Street Station is minutes from the Pennsylvania Convention Center and Center City hotels.

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**Resident/Fellow** status is for individuals enrolled in a neurosurgery residency training program approved by ABNS, RCPSC, or MCNS, or in an accredited neurosurgical fellowship. No application necessary, residents and fellows in Canada and Mexico are encouraged to register with AANS member services to insure their inclusion.

**International** membership is for those who do not qualify as an Active member by virtue of their residency or training and who have completed a formal neurosurgical training program as determined by, and suitable to, the Board of Directors. For dues information, please see page 135.

**International Resident/Fellow** category is for residents or fellows who are enrolled in a verifiable non-North American neurosurgical training program. Each applicant for International Resident Membership shall complete an electronic application and provide a letter from the applicant’s Program Director certifying that the applicant is in a training program.

**Honorary** members shall be chosen from recognized leaders in the field of neurological sciences. Honorary Membership is bestowed upon the recipient by the AANS as described in “The Rules and Regulations of the Board of Directors of the American Association of Neurological Surgeons (AANS)”.

**Associate** category includes doctors in related medical disciplines who are non-neurosurgeons as well as neuroscience nurses, nurse practitioners, and physician assistants who reside in North America.

**Allied** membership is for individuals who are certified surgical technologists and are certified by the Liaison Council on Certification for the Surgical Technologist with advanced certification in neurological surgery or who are office staff.

**Lifetime** membership is for individuals who are retired from the practice of neurosurgery or who have been an AANS member for at least 30 years.

**For more information visit the AANS Resource Center in booth #1725 in the Exhibit Hall or contact us at:**

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<td>Osama Hassan Khan, MD</td>
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<td>Irene Kim, MD</td>
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<td>Cyrus Black King, MD</td>
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<td>Selma Zuki Kominek, MD</td>
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<tr>
<td>Ali Kooshkabadi, MD</td>
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<tr>
<td>David Krieger, MD</td>
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<td>P. Hari Krishna, MD</td>
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<td>Khalid Mohamad Krish, MD</td>
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<td>Varun R. Kshettry, MD</td>
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<td>Ritesh Kumar, MD</td>
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<tr>
<td>Michael LaBagnara, MD</td>
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<td>Moujahed Labidi, MD</td>
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<td>Rohan Rajiv Lall, MD</td>
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<td>Brian Lee, MD</td>
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<td>Darrin J. Lee, MD</td>
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<td>One (William) C. Lee, MD</td>
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<td>Sun Ik Lee, MD</td>
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<tr>
<td>Juan Antonio Legaspi Sanchez, MD</td>
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<td>Jonathan Ross Lena, MD</td>
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<td>Jason Andrew Liauw, MD</td>
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<td>Jonathan J. Liu, MD</td>
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<td>Sheng-fu Larry Lo, MD</td>
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<td>Victor Ping-Yang Lo, MD</td>
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<td>Robert Lober, MD</td>
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<td>Andrew Michael Lozen, MD</td>
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<td>Matthew MacDougall, MD</td>
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<td>Lukasz Macyszyn, MD</td>
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<td>Casey James Madura, MD</td>
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<td>Mark Edward John Magner, MD</td>
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<td>Grant William Mallory, MD</td>
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<td>Amitoz Manhas, MD</td>
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<td>Sunil V. Manjila, MD</td>
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<td>Jonathan Paul Mannas, MD</td>
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<td>Nassir Mansour, MD</td>
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<td>Jotham Manwaring, MD</td>
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<tr>
<td>Joshua Dean Simon Marcus, MD</td>
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<td>Nitin Rajkumar Mariwalla, MD</td>
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<tr>
<td>Neena Ishwari Marupudi, MD</td>
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<td>Marlon Stephen Mathews, MD</td>
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<td>Nnenna Mbabuike, MD</td>
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<tr>
<td>Catherine McClung-Smith, MD</td>
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<tr>
<td>Heather Jane McCrea, MD</td>
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<tr>
<td>James Estle McKinley, MD</td>
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</tr>
<tr>
<td>Richard J. McMurtrey, MD</td>
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</tbody>
</table>

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Sebastian Zavoian, MD

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Dwayne Anderson, MD
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Catherine Berg, NP
Grace Bryan, PA-C
Christina Campbell, ARNP
Melissa Clark, PA-C
Matthew Dale Danilson, PA-C
Pamela DeAngelis, RN
Sanjeev K. Deveshwar, MD
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Nancy Jane Waller, CRNFA
Terri Wischhoefer, PA-C
Judith Wulf, RN, CNP
# AANS Membership Dues

## Membership Dues

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<thead>
<tr>
<th>Category</th>
<th>Dues</th>
<th>Journal of Neurosurgery</th>
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<td><strong>Active &amp; Active Provisional</strong></td>
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<tr>
<td>Military</td>
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<tr>
<td>Lifetime</td>
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<td>Online Upon Request Paper – $200 (Optional)</td>
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<td><strong>International</strong></td>
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<td>Developing Countries</td>
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<td><strong>Resident/Fellow</strong></td>
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<tr>
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<tr>
<td><strong>International Resident/Fellow</strong></td>
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<td>Online Included Paper – $190 (Optional)</td>
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<tr>
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<tr>
<td>Nurse, Nurse Practitioner, Physician Assistant</td>
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<td><strong>Allied</strong></td>
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<tr>
<td>Neurosurgical Office Staff</td>
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## AANS Membership by Category

As of January 6, 2010

<table>
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<td>6</td>
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<tr>
<td>Pending</td>
<td>121</td>
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**Total AANS Membership** 8195
ANNUAL MEETING MISSION
The main goals of the American Association of Neurological Surgeons’ Annual Meeting are to serve as a primary source of continuing medical education, tailored specifically to our specialty; to advance neuroscience research, and to promote a climate conducive to excellence in clinical practice. The Annual Meeting Committee is dedicated to meeting these goals. The AANS Annual Meeting is the principal mechanism for the transfer of scientific, technical, and intellectual information to the neurosurgical community. Feedback obtained from the online attendee evaluation survey is one important factor in determining the program content of this meeting. Special recognition is extended to the individuals of the 2010 Annual Meeting Committee and the committees they represent for their perseverance and commitment to making the Annual Meeting of the American Association of Neurological Surgeons a success.

CONTINUING MEDICAL EDUCATION (CME)
The AANS is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The AANS designates this educational activity for a maximum of 45* AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

* A maximum of 21 AMA PRA Category 1 Credits™ for general sessions only.

CME CREDIT FOR PRACTICAL CLINICS
Attendees will receive a maximum of four AMA PRA Category 1 Credits™ for all eligible half-day clinics and eight AMA PRA Category 1 Credits™ for all eligible full day clinics. Physicians should only claim credit commensurate with the extent of their participation in the activity.

CME CREDIT FOR ELECTRONIC POSTERS
Physicians may claim AMA PRA Category 1 Credits™ directly with the AMA for preparing an electronic poster presentation, which is also included in the published abstracts. To obtain credit from the AMA for this, physicians can either claim them on their AMA PRA certificate application or apply directly to the AMA for an AMA PRA Category 1 Credits™ certificate. Physicians may claim AMA PRA Category 2 Credit™ for viewing scientific posters. Physicians should self-claim credit to the AMA on their AMA PRA certificate application form.

CME CREDIT FOR ALLIED HEALTH PROFESSIONALS
Practical Clinics, Breakfast Seminars and afternoon sessions designated with an “N&PE” are designed with Allied Health professionals in mind.

This continuing nursing education activity was approved by the Illinois Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation.

In order to receive nursing contact hours for the designated sessions, nurses must turn in their course tickets when they attend these sessions. Certificates will be mailed within 30 days of the meeting.

Physician assistants must self-report their credit on MyAANS.org (see the following paragraph) after the completion of the meeting. They will receive a certificate of attendance which can be submitted to the American Academy of Physician Assistants for acceptance towards the Physician Assistant Category I (preapproved) CME requirement.

CLAIM CME CREDIT THE EASY WAY
Again this year, Annual Meeting attendees will self-report CME credit for the programs they attend by going online to MyAANS.org. Please have your MyAANS.org user name [e-mail address] and password handy during and after the meeting for convenient completion and submission. Self reported CME will not be credited if the individual does not pick up his/her registration material. Do not self-report CME credit for optional ticketed events such as breakfast seminars and practical clinics. By turning in your tickets onsite, credit will automatically be added to your record in MyAANS.org. Please contact the AANS if you are not in attendance for the full breakfast seminar or practical clinic so that your credit can be adjusted accordingly.

DISCLAIMER
The material presented at the 78th Annual Meeting has been made available by AANS 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 it 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
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**AANS CME CYCLE**

The current AANS CME cycle is January 1, 2008 – December 31, 2010. AANS Active, Active Provisional, and International members residing in the U.S. are required to document receipt of the Continuing Education Award in Neurosurgery to maintain membership. This Award is earned by documenting at least 60 *AMA PRA Category 1 Credits™* during the CME cycle.
DISCLOSURE LISTING

DISCLOSURE REPORTED
4/19/2010

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Other Financial or Material Support
DePuy Spine
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Porex Inc
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EV3
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OrthoMEMS
Consultants
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Abbott Spine
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DePuy
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DePuy

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Trans1
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Grants/Research Support
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Honorarium
Mayo Clinic
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Biomet
Consultants
Medronic

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Stock Shareholder (Directly purchased)
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Saint Jude Medical

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Grants/Research Support
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Covidien

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Grants/Research Support
NIH

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Medtronic
Grants/Research Support
Synthes
Consultants
Covidien
Consultants
Depuy Spine
Grants/Research Support
Depuy Spine

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Consultants
Stryker
Consultants
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Grants/Research Support
Medtronic Sofamor Danek
Other Financial or Material Support
Medtronic Sofamor Danek

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NeuroGrafix

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Grants/Research Support
Medronic
Other Financial or Material Support
Medtronic
Stock Shareholder (Directly purchased)
Medtronic
Consultants
Nuvasive
Other Financial or Material Support
Nuvasive
Stock Shareholder (Directly purchased)
Nuvasive
Consultants
ArthroCare, Inc.
Other Financial or Material Support
ArthroCare, Inc.

Thomas B. Freeman, MD, FACS
Consultants
Celgenica
Grants/Research Support
Anthony K. Frempong-Boadu, MD  
**Honorarium**
Medtronic

Gerhard M. Friehs, MD  
**Stock Sharehold (Directly purchased)**
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**Consultants**
Advanced Bionics, Inc.  
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Elan Inc.

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Allegiance  
*Stock Sharehold (Directly purchased)*  
Synergetics  
*Consultants*  
Zeiss  
*Consultants*  
Anspach  

**Robert J. Spinner, MD, FACS**  
*Consultants*  
NBI Development, Inc  

**Philip A. Starr, MD, PhD**  
*Consultants*  
Boston Scientific  
*Grants/Research Support*  
Surgivision, Inc.  
*Grants/Research Support*  
Medtronic  

**Gary K. Steinberg, MD, PhD**  
*Consultants*  
Neurofluidics  
*Other Financial or Material Support*  
Stem Cells, Inc  
*Grants/Research Support*  
NIH  

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Biomet  

**Brian R. Subach, MD, FACS**  
*Consultants*  
Medtronic  

**Stephen B. Tatter, MD, PhD**  
*Consultants*  
Monteris Medical, Inc  

**Gabriel C. Tender, MD**  
*Honorarium*  
Trans1  
*Honorarium*  
Stryker  

**Satoshi Teramura, MD**  
*Consultants*  
Mizuho Ikakogyo  
*Grants/Research Support*  
Mizuho Ikakogyo  
*Other Financial or Material Support*  
Mizuho Ikakogyo  

**John M. Tew Jr., MD**  
*Consultants*  
KLS Martin  
*Consultants*  

**Cosman Company**  

**Nicholas Theodore, MD**  
*Grants/Research Support*  
Alseres  
*Honorarium*  
Alseres  
*Consultants*  
Synthes Spine  
*Grants/Research Support*  
Synthes Spine  
*Other Financial or Material Support*  
Synthes Spine  
*Consultants*  
Codman Corporation  
*Consultants*  
Stryker Spine  
*Grants/Research Support*  
Stryker Spine  
*Other Financial or Material Support*  
Stryker Spine  
*Consultants*  

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*Consultants*  
Aesculap  

**Najeeb M. Thomas, MD**  
*Grants/Research Support*  
medtronic  
*Honorarium*  
medtronic  

**Claudius Thome, MD**  
*Grants/Research Support*  
Intrinsic Therapeutics Inc.  
*Consultants*  
Signus Medical  
*Grants/Research Support*  
Signus Medical  

**Shelly D. Timmons, MD, PhD**  
*Honorarium*  
Integra  
*Honorarium*  
Synthes  
*Grants/Research Support*  
NIH  

**James C. Torner, PhD**  
*Consultants*  
IFUS  
*Consultants*  
BHR Pharmaceuticals  
*Consultants*  
Acetion  

**Roland A. Torres, MD**  
*Grants/Research Support*  
N.I.H/N.I.N.D.S  
*Consultants*  

**Integra Neuroscience**  
*Grants/Research Support*  
AESCULAP Spine  

**Vincent C. Traynelis, MD**  
*Consultants*  
United HealthCare  
*Consultants*  
Medtronic Sofamor Danek  
*Other Financial or Material Support*  
Medtronic Sofamor Danek  

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*Honorarium*  
Medtronics  
*Honorarium*  
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**Jamie S. Ullman, MD**  
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Oxygen Biotherapeutics, Inc.  

**Craig Andrew Van Der Veer, MD**  
*Stock Sharehold (Directly purchased)*  
chestnut  
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*Stock Shareholder (Directly purchased)*  
pioneer surgical  

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*Consultants*  
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*Consultants*  
Microvention  
*Consultants*  
Cordis  
*Consultants*  
Micrus  

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**Jean-Marc Voyadzis, MD**  
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Medtronic  
*Honorarium*  
Stryker  

**Michael Y. Wang, MD**  
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Biomet Spine  
*Grants/Research Support*  
AANS/CNS Spine Section  
*Consultants*  

Aesculap Spine
Consultants
Depuy Spine
Grants/Research Support
Depuy Spine

Clarence B. Watridge, MD, FACS
Grants/Research Support
NINDS CREST Trial
Grants/Research Support
NIH - COSS Study
Grants/Research Support
Medtronic
Grants/Research Support
Spinal Motion

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Synthes Spine
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Transcendental Spine
Grants/Research Support
Stryker Spine
Consultants
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American Intraoperative Monitoring
Stock Sharehold (Directly purchased)
Oklahoma Physical Therapy
Stock Sharehold (Directly purchased)
Oklahoma Diagnostic Imaging
Stock Shareholder (Directly purchased)
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USR Holdings
Consultants
Ranier Technology

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Grants/Research Support
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Stryker Spine
Consultants
Depuy Spine
Consultants
Other Financial or Material Support

InVivo Therapeutics

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MGI Pharma
Other Financial or Material Support
Immunocellular Therapeutics, Ltd.
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Immunocellular Therapeutics, Ltd.

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Grants/Research Support
Synthes CMF
Honorarium
Synthes CMF

DISCLOSURE REPORTED
4/19/2010

NO DISCLOSURE

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Manish K. Aghi, MD
Abhishek Agrawal, MD
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Paolo Cappabianca, MD
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