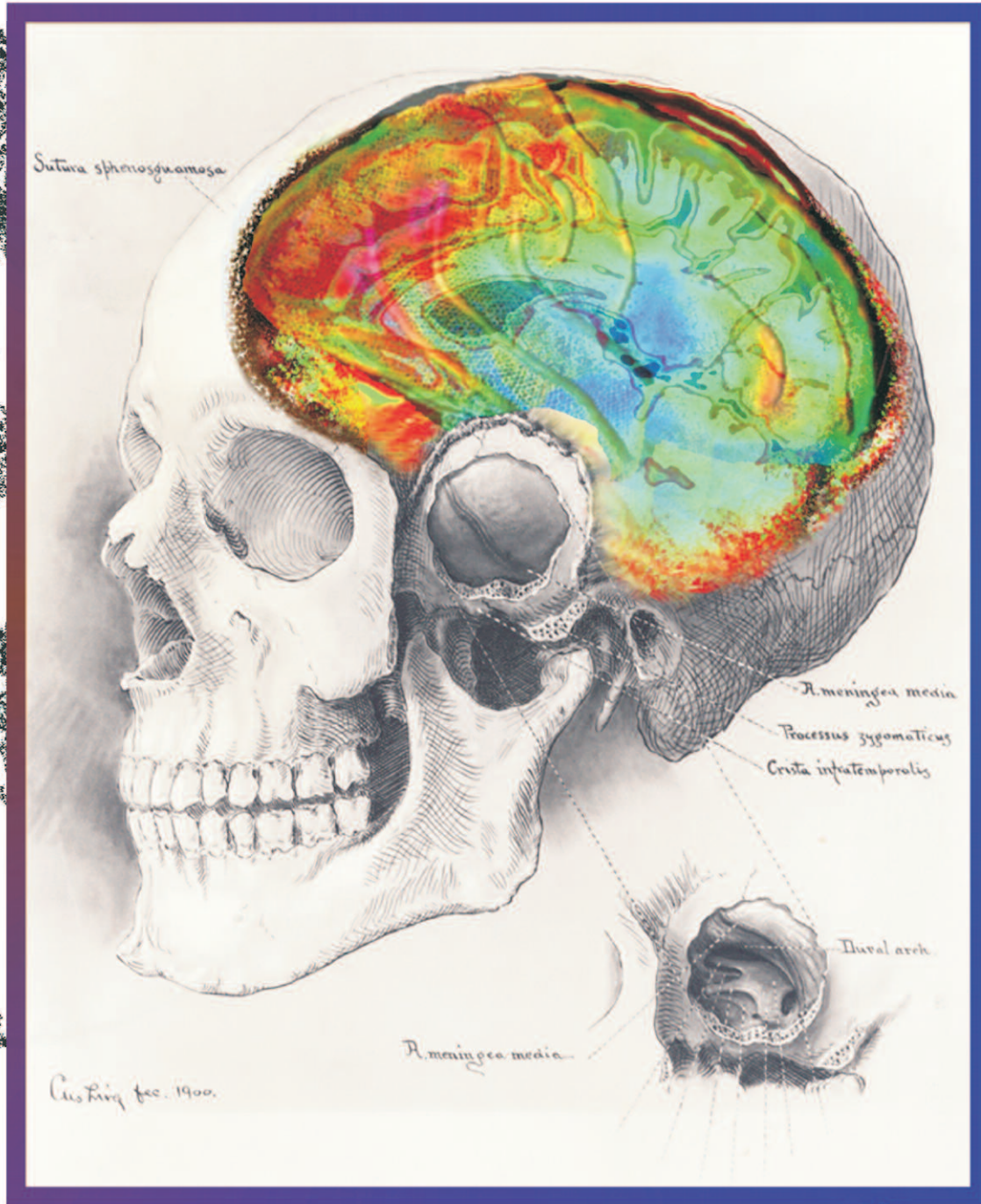


# Tradition and Innovation

AANS 2006 ANNUAL REPORT



American  
Association of  
Neurological  
Surgeons

## A Legacy of Tradition and Change

A decade after the establishment of the Society of Neurological Surgeons in 1920, a group of visionary neurosurgeons decided to form a new group, called the Harvey Cushing Society, in 1931. Between 1938 and 1951, three additional neurosurgical organizations were formed. In 1967, the Harvey Cushing Society changed its name to the American Association of Neurological Surgeons (AANS), serving as the official voice of all neurosurgeons in North America. In looking forward to the 75<sup>th</sup> Anniversary of the AANS, I am struck by how apropos the familiar adage, "The more things change, the more they stay the same," is to the field of neurosurgery.



An excerpt from a 1931 letter by Temple Fay, MD, delineated the group's primary challenge. "The most important phase of our problem rotates around investigation and advancement in the fields of neurosurgery, with the fundamental needs of establishing methods of early diagnosis and postoperative treatment, directed toward the protection of the patients, and a decrease in mortality."

Seventy-five years later, the AANS is still striving to enable its members to deliver the best care to patients. Advancing the specialty of neurological surgery in order to promote the highest quality of patient care is part of our mission. While the mission has not changed significantly in 75 years, the methodology of realizing it has evolved by leaps and bounds. Technological and medical advancements have created a world that neurosurgery's founding fathers would find miraculous.

The continuing medical education (CME) of neurosurgeons is as important today as it was to the founders of the Harvey Cushing Society. The AANS has risen to new challenges presented by Maintenance of Certification (MOC) requirements by revising its CME policies, delineating the MOC process, expanding its course offerings, offering online CME courses, and tracking and recording CME credits for members.

Some of the challenges facing neurosurgery today are: providing adequate emergency care coverage, infiltration by other specialties, professional liability costs, Medicare reimbursement, maintaining high ethical standards, and declining medical student interest in the field of neurosurgery.

To address the growing concerns about adequate emergency care coverage, the AANS Board of Directors organized the AANS Task Force on Neurosurgical Care and Physician Workforce Issues in the fall of 2005. While circumstantial evidence has pointed to a lack of emergency room coverage, the 2006 AANS Workforce Survey painted a more accurate picture. Results show that 93 percent of neurosurgeons currently take emergency call, although 76 percent perceive call coverage to be a problem in their region.

The AANS recognizes that this is a complex issue, but feels that other medical specialists such as trauma physicians are not properly trained to provide acute neurosurgical care to patients. Procedures such as emergency craniotomy and ventriculostomy should be administered by neurosurgeons. In April 2006, the Board of Directors issued the following Patient Safety Policy Statement: "The AANS affirms that patient safety is best achieved when surgical diseases affecting the nervous system are managed by neurological surgeons."

Recent strides have been made in the stereotactic radiosurgery arena. After more than a year of discussions with the American Society for Therapeutic Radiology and Oncology (ASTRO), a mutually agreeable contemporary definition of stereotactic radiosurgery was approved in April 2006 by the AANS, the Congress of Neurological Surgeons, and ASTRO. The definition protects the role of the neurosurgeon in administering treatment by stating that: "To assure quality of patient care, the procedure involves a multidisciplinary team consisting of a neurosurgeon, radiation oncologist, and medical physicist."

The establishment of the new political action committee, AANSPAC, in June 2005 (now known as NeurosurgeryPAC), has enabled the AANS to more effectively advocate for legislation that supports medical liability reform and favorable Medicare reimbursement rates, to name just two key issues.

The Professional Conduct Committee ensures that the highest ethical standards are maintained by members. The most frequent causes for sanction in recent years have been inadequate knowledge into the subject matter under question during legal testimony; and testimony that failed to recognize diagnostic or treatment methods that differed from what the witness advocated, but which was within the generally accepted standard of care.

With the declining numbers of neurosurgeons, attracting new medical students is essential to maintaining the high level of skill, dedication, and commitment required to carry on the legacy of neurological surgery. The AANS is looking at new programs to encourage medical students to pursue careers in neurosurgery.

The AANS and the field of neurosurgery have grown side by side over the last 75 years. There was no better evidence of this than at the 2006 AANS Annual Meeting in San Francisco. What a long way we have come since Dr. Cushing welcomed 23 of the Society's 35 charter members to the first official annual meeting in Boston on May 6, 1932. In 2006, I was honored to preside over this meeting and address a large majority of the 3,172 medical registrants in attendance, the highest number ever in the history of the AANS. The field has many challenges ahead, but just as our predecessors did, we will face these head on within the structure of a sound organization with 75 years of tradition and innovation.

**Fremont P. Wirth, MD**  
2005-2006 AANS President



## Reflecting Back, Moving Forward

In a speech to the House of Commons in November 1944, Prime Minister Winston Churchill asserted that "A love of tradition has never weakened a nation; indeed, it has strengthened nations in their hour of peril. But the new view must come, the world must roll forward."

As the AANS enters into recognition of its 75<sup>th</sup> year, it seems most appropriate to reflect upon the fact that perhaps the most unique aspect of this organization is the sense of tradition and history held so closely by its members.

This is not a particularly extraordinary trait in many professional associations. It is common for many membership organizations to have their sole *raison d'être* rooted in the past, where significant historical focus dictates that their current purpose merely repeats traditional offerings and culture.

But this is not the AANS. What its members should take tremendous pride in is how the AANS continues to evolve and drive forward. While never losing the tradition upon which it was founded and preserving the ideals of the physician it honors, it has not feared change and redefinition in striving to meet its members' needs.

Although its unique sense of history and tradition are still at the forefront of its mission and relevance, the AANS continues to proactively and aggressively improve itself by seeking solutions to the growing challenges facing its members in medicine today.

As you will see in the pages of this report, this past year saw AANS in full command of its resources in responding to its membership. Among the many initiatives undertaken or advanced were assembling a task force to address the workforce and ER coverage crises facing the specialty; advancing the AANS' ongoing focus on medical liability reform; implementing advanced technological expertise to assist and facilitate members' medical education and changing certification

requirements; maximizing the cooperative partnership between industry and physicians; advancing neurosurgical research; and facilitating the sharing of education, knowledge, and cooperative collegiality of neurosurgeons worldwide.

All this occurred a mere five years after the organization implemented the most drastic infrastructural and fiscal reorganization in its history. Once achieved, there was no pause in its growth; the rapid climb back to organizational stability was followed by an immediate commitment to improve service to AANS members, rather than merely accumulate wealth and consolidate gains.



The results will be evident as you read this report. As we begin a celebratory focus on the man and ideals upon which the AANS was founded 75 years ago, all members should know that Harvey Cushing's spirit and drive to serve and lead continues to propel his organization. This sense of tradition fuels a robust vitality that enables the AANS to serve as ombudsman for its members in a "new view" world of medicine in the 21<sup>st</sup> century.

On behalf of the professional staff of the AANS, and along with Dr. Wirth and his colleague leaders, I am very pleased to present this review of the AANS service to its membership over the past year.

**Thomas A. Marshall**

AANS Executive Director

### AANS Mission Statement

The American Association of Neurological Surgeons (AANS) is the organization that speaks for all of neurosurgery. The AANS is dedicated to advancing the specialty of neurological surgery in order to promote the highest quality of patient care.

### AANS Vision Statement

- The American Association of Neurological Surgeons will ensure that neurosurgeons are recognized as the preeminent providers of quality care to patients with surgical disorders that affect the nervous system.

- The American Association of Neurological Surgeons will work to expand the scope of neurosurgical care as new technologies and treatments of neurological disorders become available.
- The American Association of Neurological Surgeons will be the organization speaking for neurosurgery through its communications and interactions with the public, media, government, medical communities, and third party payers.
- The American Association of Neurological Surgeons will be its members' principal resource for professional interaction, practice information and education.
- The American Association of Neurological Surgeons will promote and support appropriate clinical and basic science to expand the scope of neurosurgical practice.

# Continuing Tradition — Offering Innovative Educational Opportunities

The AANS received a four-year accreditation from the Accreditation Council for Continuing Medical Education (ACCME) after an extensive audit in August 2005. This accreditation allows the AANS to plan, develop and implement CME activities and to jointly sponsor programs with other organizations.

There were 13 CME activities directly sponsored by the AANS, including the always-popular *Neurosurgery Review by Case Management Oral Board Preparation Course*, under the leadership of Course Director Julius M. Goodman, MD. Other courses included *Improving the Financial Health of Your Practice*, *Current Advances in Spinal Fixation: An Advanced Course*, *Minimally Invasive Spinal Techniques*, and two levels of coding courses, under the leadership of Coding Course Chair Gregory J. Przybylski, MD. In addition, there were 21 jointly sponsored activities and 30 cosponsored activities.

Building on last year's implementation of the new CME policy to encompass MOC challenges, the AANS offered members a hands-on opportunity to learn more about the intricacies of MOC. The MOC Town Hall Meeting provided an open forum for discussion about the process and was conducted by American Board of Neurological Surgery (ABNS) staff and Board members directly involved in the process of recertification. More than 150 people attended the event at the 2006 AANS Annual Meeting.



The AANS recognizes that it can be difficult for members and the greater neurosurgical community to travel to meetings, and addressed this by expanding alternative offerings in 2006. In addition to courses, the AANS broadened access to neurosurgical education through online programs and nine home-study options, including the monthly *Neurosurgical Focus*, and the AANS line of DVDs, with several new sessions recorded at the AANS 2006 Annual Meeting. New DVD topics encompassed spine, minimally invasive techniques, tumor and trauma, as well as socioeconomic issues such as medical liability and improving a practice's bottom line.

Through the support of Medtronic, the AANS introduced its first online CME course. Richard G. Fessler, MD, PhD, leads a lecture describing the minimally invasive microendoscopic technique for performing a decompressive laminotomy for lumbar stenosis. This free online course offers one Category 1 CME credit. Since its launch in February 2006, 100 members have participated, and the course has generated high praise.

## EDUCATION



**Kevin T. Foley, MD**  
Minimally Invasive Spine  
Course Director

Kevin T. Foley, MD, feels strongly about sharing and teaching cutting edge surgical techniques with other neurosurgeons. A renowned spine surgeon with extensive knowledge and surgical experience in minimally invasive spine surgery, Dr. Foley has lent his expertise to a variety of AANS educational programs on this topic.

Most recently, Dr. Foley's practical clinic, *Minimally Invasive Microendoscopic Discectomy* was videotaped at the 2006 AANS Annual Meeting. The three-DVD set reviews current techniques for minimally invasive lumbar and cervical discectomy as well as minimally invasive lumbar fixation and fusion. The DVDs feature all didactic presentations as well as capture lab work, complete with imaging and close-up video of instructional techniques, and offer 6 Category 1 CME credits.

"It is rewarding to know that members who were not able to attend this practical clinic at the annual meeting can now access it through the DVDs, learn the latest in minimally invasive spine techniques, and earn CME credits," stated Dr. Foley. "I am happy to collaborate on AANS projects that enhance members' options for earning CME, whether these are on-site courses in which I am a clinical director or a faculty member, or alternative opportunities," said Dr. Foley.

*Dr. Foley is a professor in the Department of Neurosurgery and an associate professor in the Department of Biomedical Engineering at the University of Tennessee Health Science Center. He is also a practicing member of the Semmes-Murphey Neurologic and Spine Institute in Memphis, Tenn.*



# The 2006 AANS Annual Meeting: Meeting the Challenges of Neurosurgery

AANS annual meetings are the largest gatherings of neurosurgeons in the nation, focusing on the latest research and technological advances in the field. Medical attendees choose from a plethora of state-of-the-art education and science presented by top neurosurgeons from across the world, and can earn up to 20.75 Category 1 CME credits and an additional 27.75 credits by attending some of the optional programs such as breakfast seminars and practical clinics.

The 2006 AANS Annual Meeting in San Francisco commenced on Saturday, April 22 with practical clinics and culminated on Thursday, April 27, with a unique event for cultural and clinical exchange, the Japanese American Friendship Symposium. Led by Annual Meeting Chair James T. Rutka, MD, PhD, FRCS, and Scientific Program Chair Mitchel S. Berger, MD, FACS, this year's meeting boasted a record-high 3,172 medical attendees, with a total of 6,887 participants, including exhibitors and guests.

After a weekend of hands-on clinics, neurosurgeons enjoyed the Sunday evening Streets of San Francisco Opening Reception. Attendees of all ages took swings in the batting cage and dined on a smorgasbord of gastronomic delights, running the gamut from cotton candy and hot dogs to jumbo shrimp and pot stickers. The Ghirardelli Chocolate dessert bar was perhaps the biggest hit of the evening!



## The 2006 AANS Annual Meeting at a Glance

- 38 practical clinics
- 19 general scientific sessions
- 136 oral abstract presentations
- More than 500 poster presentations
- About 785 exhibit booths (representing 236 companies)
- 77 educational breakfast seminars
- 2006 Cushing Orator, Pulitzer Prize winning columnist George F. Will

## Honoring Neurosurgeons that Made a Difference

- Cushing Medalist (highest award given) — David G. Kline, MD
- Distinguished Service Award — Lyal Leibrock, MD
- Humanitarian Award — Gene Bolles, MD

## EDUCATION

### Julius M. Goodman, MD AANS Oral Boards Course Director



Understandably, many neurosurgeons are apprehensive about taking the certification examination given by the ABNS. One must be in practice for two to

five years post residency before taking the exam. During this time, a large proportion of neurosurgeons have chosen to subspecialize or focus their practice and have not had the opportunity to keep current on all aspects of clinical neurosurgery and related neurology.

Julius M. Goodman, MD, proposed that the AANS Education and Practice Management Committee sponsor a course that would be a broad review of neurosurgery and at the same time allay the examinees' anxiety by familiarizing them with the mechanics of the exam. Consequently, the *AANS Neurosurgery Review by Case Management: Oral Board Review Course* came into being nearly a decade ago. The first course was held in San Diego in May 1997 with 32 registrants.

The course, under the direction of Dr. Goodman, has exceeded expectations. Its popularity has led to two course offerings per year with nearly 100 registrants per course. "During each course I work with 25-30 volunteer faculty from both academic and private

practice, most of whom are alumni of the course, who provide an interactive curriculum for their younger colleagues."

Dr. Goodman is currently working with the AANS on establishing an interactive review course for neurosurgeons that are already board certified but who are interested in a general update in neurosurgery, as well as preparation for recertification. The first course, *Weekend Update: Neurosurgery Review by Case Management*, will be in Atlanta in February 2007.

*Dr. Goodman is a founding member of the Indianapolis Neurosurgical Group and a clinical professor of Neurological Surgery at the Indiana University School of Medicine in Indianapolis, Ind.*

### A Tradition of Sharing Knowledge — Special Lectures

- The Rhoton Family Lecturer — Volker K.H. Sonntag, MD
- The Ronald L. Bittner Lecturer — Mitchel S. Berger, MD, FACS
- The Van Wagenen Lecturer — Michael Merzenich, PhD
- The Richard C. Schneider Lecturer — Arthur L. Day, MD, FACS
- The Theodore Kurze Lecturer — Mark Bernstein, MD, FRCSC
- The Hunt-Wilson Lecturer — Arnold R. Kriegstein, MD, PhD

### Extending Neurosurgery's Reach

- This year, a special pilot course was offered on April 25 to physician extenders involved in evaluating patients with low back pain. *Evaluation and Initial Treatment of Patients with Low Back Pain: A Course for Physician Extenders*, was very well received by the nearly 80 physician assistants and nurses in attendance.
- Four complimentary clinical courses were offered exclusively to residents and fellows on Saturday and Sunday, as well as a session covering the socioeconomic challenges facing residents upon launching a neurosurgical practice.

### Japanese American Friendship Symposium

Spearheaded by Christopher Loftus, MD, FACS, and Benjamin White, MD, in the United States and Tomokatsu Hori, MD, and Takeshi Kawase, MD, in Japan, this symposium offered more than an opportunity to share cultural exchanges. It was an innovative venue for Japanese and American neurosurgeons to discuss the clinical aspects of several neurosurgical topics: Vascular, spinal, functional, and benign brain and spinal tumors. These discussions covered the clinical management of unruptured aneurysms, Moyamoya disease, intractable pain, epilepsy, and cranial meningiomas.

## Neurosurgery Media Outreach Campaigns — Spreading the Message

### Annual Meeting Media Public Relations

Every year, the AANS highlights neurosurgical topics chosen by a peer-review process from all accepted oral abstracts for release to the media. This year there were 13 Annual Meeting scientific releases that generated considerable media attention. Print and broadcast media reached an estimated audience of 639 million worldwide. Notable online outlets included: Yahoo!News, USAToday, Reuters, HealthScout, HealthDay, HealthCentral, Excite and Forbes. Major newspapers and magazines included: *The Wall Street Journal*, *The Cleveland Plain Dealer*, *Star Tribune*, *Indianapolis Star*, and *Business Week*. Highlighted topics included:

- Minimally Invasive Surgery a Viable Option for Patients with Herniated Lumbar Disks
- PRESTIGE ST Artificial Cervical Disc a Promising Future Treatment for Patients Requiring Cervical Surgery for Intractable Neck Pain
- Analysis of Return-to-Work Data Provides Insight into Cervical Spine Surgery Efficacies
- Hospital Report Cards an Inaccurate Tool for Assessing Craniotomy Surgery Outcomes
- Epidermal Growth Factor Receptor Variant III Peptide Vaccination Shows Promise for Extending Survival Time in Patients with Glioblastoma Multiforme
- Cortical Language Mapping May Help Preserve Essential Language Sites in Patients Undergoing Brain Surgery for Gliomas

## ANNUAL MEETING



### Michael Y. Oh, MD

#### Young Neurosurgeons Committee

Michael Y. Oh, MD, brought a very intriguing concept to fruition when he realized his dream of staging a neurosurgical competition for residents

and fellows at the 2006 AANS Annual Meeting. Dr. Oh and the Young Neurosurgeons Committee presented the first Neurosurgical Top Gun Competition in San Francisco beginning on Monday, April 24, and culminating on Wednesday, April 26.

The three-day competition provided challenges for residents and fellows including a tremor analysis, a computer-simulated ventriculostomy station, and a pedicle screw placement station. "I think this event was a great entree into the technological world of medical simulators, providing hands-on skills to residents and fellows, in a setting of competitive spirit and camaraderie," stated Dr. Oh.

"It was also a vehicle for corporate sponsors to champion innovative approaches to learning," added Dr. Oh. The competition was made possible

through the support of Allegheny General Hospital - Institute for Computer Assisted Neurosurgery, Carnegie Mellon - The Robotics Institute, Immersive Touch, Leica Microsystems, Medtronic, and Thieme Medical Publishers.

The 2006 Neurosurgical Top Gun Award was given to Matthew R. Johnson, MD, neurosurgical resident entering his final year of residency at the University of Nebraska, Omaha. "We look forward to another fun-filled event at the 2007 AANS Annual Meeting in Washington, D.C.," concluded Dr. Oh.

Dr. Oh is director of the Institute for Computer Assisted Neurosurgery (ICAN). He is co-director of the Functional Neurosurgery Program, Allegheny General Hospital, Pittsburgh, Pa., and co-director of the Stereotactic and Functional Neurosurgery Program, West Virginia University, Morgantown, W.Va.



- Epidermal Growth Factor Receptor Status is a Powerful Predictor of Meningioma Patient Outcome and Offers Potential for Optimizing Treatment
- Hypertonic Saline a Viable Treatment for Controlling Intracranial Pressure in Patients with Traumatic Brain Injury
- Study Analyzes Skull Protection Provided by Children's Bicycle Helmets
- Resuscitation with Hemoglobin Oxygen-Carrying Solution HBOC-201 Holds Promise for Decreasing Secondary Brain Injury in Traumatic Brain Injury Patients with Hemorrhage
- Serum Magnesium Levels in Patients with Traumatic Brain Injury May Play a Crucial Role in Outcome
- Computed Tomographic Angiography Compared to Diagnostic Cerebral Angiogram for Identifying Subarachnoid Hemorrhage: Same Accuracy with Less Risk
- Deep Brain Stimulation Shows Promise in Treatment of Major Depression: Latest Research Builds on Trials of DBS Therapy for Obsessive Compulsive Disorder

### Public Awareness Campaigns

Every year, the AANS distributes public awareness releases to media outlets on topics of interest to the public. This year's topics on artificial disc, dystonia, lumbar fusion, spinal cord injury, spina bifida, and arteriovenous malformations, generated a combined total of 17 million in print circulation. The spina bifida release was the first to incorporate a story about a patient treated by an AANS member neurosurgeon, and the first to be translated into Spanish.

In addition, the AANS sponsored its first ever Neurosurgical Patient Stories Contest, awarding honoraria to the patients with the top three entries. Only patients treated by AANS members were

considered for this honor. Three award winning entries, chosen by the judges from the 30 submissions, were highlighted in Neurosurgery Awareness Week press releases and posted on [www.NeurosurgeryToday.org](http://www.NeurosurgeryToday.org). The winners were:

- Patient: Ariel Nelsen, age 4, craniopharyngioma; Neurosurgeon: Monica C. Wehby, MD, Emanuel Children's Hospital, Portland, Ore.
- Patient: Sylvia Lee, age 45, cerebral aneurysm; Neurosurgeon: Jeffrey E. Thomas, MD, FACS, California Pacific Medical Center (CPMC), San Francisco, Calif.
- Patient: Sister Claire, age 82, trigeminal neuralgia; Neurosurgeon: Mark R. McLaughlin, MD, St. Mary Medical Center, Langhorne, Penn.

## Supporting Cutting-Edge Neurosurgery in Traditional and Innovative Ways

### Post-Neurosurgical Residents Benefit from Overseas Research Opportunity

The William P. Van Wagenen Fellowship was established by the estate of Dr. Van Wagenen, who was one of the field's founders, and the first president of the Harvey Cushing Society. The fellowship provides private, nongovernmental funding for post-neurosurgical residents from a North American training site, for overseas travel for medical enrichment, prior to beginning an academic career in neurological surgery. In 2006, for the first time, two Van Wagenen Fellowships were awarded.

## ANNUAL MEETING

### Ali R. Rezai, MD

#### 2006 AANS Annual Meeting Highlighted Topics Author



Approximately 18 million American adults suffer from a major depressive disorder. While many patients find relief through a combination of medications

and psychotherapy, at least 10 percent of these patients are treatment resistant and severely disabled. Ali R. Rezai, MD, is an innovator in this cutting edge facet

of neurosurgery — the use of deep brain stimulation (DBS) to help patients with intractable depression, as well as obsessive compulsive disorder.

Dr. Rezai and his colleagues' research using DBS for psychiatric disorders gained the interest of many of the on-site reporters at the AANS Annual Meeting in San Francisco. Dr. Rezai's AANS scientific release reached 65 million readers across the world, contributing greatly to the vast media circulation generated by the full compendium of AANS highlighted releases.

"For the past five years, our multi-center collaborative team has been investigating the use of DBS for treatment of severe and treatment-resistant obsessive compulsive disorder and major depression. The long term

safety and efficacy data is demonstrating promise for this group of severely disabled individuals," remarked Dr. Rezai.

"In addition to informing our neurosurgical and psychiatric colleagues about this research, we believe that now is the time to make the public and patients aware of this neurosurgical option. With such a large number of the U.S. population affected by severe OCD and depression, this new therapeutic approach provides hope for improving the overall health, functioning and the quality of life of these patients," said Dr. Rezai.

*Dr. Rezai is chairman of the Center for Neurological Restoration and professor of Neurosurgery at the Cleveland Clinic in Cleveland, Ohio.*

- Uzma Samadani, MD, PhD, will pursue minimally invasive management of intracerebral hemorrhage under the direction of Veit Rohde, MD, at the University of Goettingen, Germany.
- Yu-Hung Kuo, MD, PhD, will further his research on radiation induction of gene therapy in the CNS under the direction of Brian Brophy, FRACS, at the Department of Neurosurgery, Royal Adelaide Hospital, Australia.
- The 2005 Van Wagenen Fellow, Devin K. Binder, MD, PhD, completed his advanced training with Johannes Schramm, MD, at the University of Bonn's epilepsy research and treatment center.

#### 2006 International Awardees

The AANS International Visiting Surgeons Fellowship program was initiated and awarded for the first time in 2005-2006. The recipients were Mirsad Hodzic, MD, PhD, of Bosnia and Herzegovina, and Rene Fernando Paz, MD, of Honduras. Dr. Hodzic's fellowship is in pediatric neurosurgery at the State University of New York, Buffalo. Dr. Paz' fellowship is at the University of Colorado Health Sciences Center in Denver, and covers trauma, pediatric and elective neurosurgical services, and development of a protocol for the treatment of spinal cord injury patients in Honduras.

The Annual International Abstract Award was presented to Ming-Yuan Tseng, MD, MSc, of the United Kingdom, for his abstract *Biological Effects of Acute Pravastatin Therapy On Cerebral Vasospasm, Delayed Ischemic Deficits, and Outcome in Patients Following Aneurysmal Subarachnoid Hemorrhage: a Randomised Controlled Trial*. The International Travel Scholarship recipient was Emad K. Hammood, BSN, of Iraq, for his abstract, *Surgical Management of Brain Hydatid Cyst in the North of Iraq*.

#### American College of Surgeons (ACS)/AANS Health Policy Scholarship

This annual scholarship, cosponsored by the ACS and the AANS, subsidizes attendance and participation in the *Leadership Program in Health Policy and Management* at Brandeis University. The 2006 recipient of the scholarship was Frederick A. Boop, MD, FACS, of the Semmes-Murphey Neurologic and Spine Institute in Memphis, Tenn.

## Advocating for Tradition and Change

The AANS/CNS Washington Committee advocates on behalf of neurosurgery on several key fronts, including:

- Medical Liability Reform
- Adequate Medicare Reimbursement
- Pay-for-Performance Issues
- Emergency Neurosurgical Care Issues and EMTALA Rules

#### Medical Liability Reform

In October 2005, AANS made its voice heard through involvement in *Protect Patients Now*, the nationwide grassroots education and advocacy campaign of Doctors for Medical Liability Reform (DMLR). DMLR launched Phase II of its campaign for medical liability reform. Using creative animations, "viral" e-mail messages, Web advertisements, and radio and print media, DMLR is building its activist database and grassroots network. Regular e-mail messages from A. John Popp, MD, president of the AANS/CNS advocacy organization

### MEMBER BENEFITS



**Bob S. Carter, MD, PhD**  
Information Technology Committee

The AANS leadership was looking for opportunities to expand educational activities to reach more neurosurgeons. Recognizing that many practitioners have

varied learning styles, leadership charged the Information Technology Committee with the task of identifying ways in which the AANS could optimize its Web site for neurosurgical education. Bob S. Carter, MD, PhD, a member of the committee, developed the idea of offering online case studies. "My vision was that members from the United States and around the world could submit cases that would represent the variation in disease presentation and management within neurosurgical practice," stated Dr. Carter.

Dr. Carter developed the concept, secured support from the Information Technology Committee chair, and created a pilot program that he presented to the Executive Committee. Working with AANS staff, he developed a budget that was also approved.

"Participants can describe how they have managed a similar case in another way or

offer insights into other aspects of the case presentation or pathophysiology," said Dr. Carter. All cases are reviewed by a board-certified neurosurgeon prior to posting. Since putting out the call to the Sections for reviewers, three neurosurgeons have stepped up and volunteered to review cases.

Another quality that makes the AANS Online Case Study project valuable to members is its broad appeal. Cases can be submitted by residents, those in early practice or board-certified members. Password-protected and available only to members, neurosurgeons and allied health care professionals can comment on cases and learn from each other in a protected environment. Online case studies can be accessed on MyAANS.org.

*Dr. Carter is associate professor of Neurosurgery at Harvard Medical School and attending neurosurgeon at Massachusetts General Hospital in Boston, Mass.*



Neurosurgeons to Preserve Health Care Access, keep neurosurgeons informed about the campaign and encourage recipients to spread the medical liability reform message by forwarding DMLR's communiqués to as many people as possible.

DMLR also ran radio and newspaper advertisements in several key states, and continued its Internet campaign with online advertisements, an ongoing reform petition drive, and other activities aimed at generating support for reform. As of June, DMLR has reached approximately 65 million listeners through radio interview programs and collected more than 40,000 signatures for its petition drive. The grassroots network, which is now over 150,000 strong and growing, has sent more than 15,000 letters to Congress.

As a response to two medical liability reform bills that did not pass in the U.S. Senate in May 2006, DMLR redoubled its grassroots outreach efforts, developing an integrated free Patient Outreach Kit for doctors' offices. The materials are designed to give physicians the resources they need to educate their patients and colleagues on the medical liability crisis. In June, DMLR launched a candidate pledge drive, calling on all candidates for the U.S. Senate to sign a pledge in support of reform. This initiative will continue until election day in November.

### Medicare Reimbursement and Pay-for-Performance

Medicare was under fire throughout the year, and the Washington Committee, along with other medical societies, stepped up to advocate against proposed physician reimbursement cuts by the Centers for Medicare and Medicaid Services (CMS). A 3 percent cut in reimbursement was deflected in early November 2005, when CMS withdrew its practice expense proposal. In addition, a 4.4 percent payment cut for 2006 was prevented when Congress passed the Deficit Reduction Act. The bill, which passed in early



February, restored Medicare payments to 2005 levels, retroactive to January 1, 2006. The payment freeze was a temporary one-year "fix" to the currently flawed Medicare physician payment update formula, however, and unless Congress acts, reimbursement will be cut by about 5 percent each year through 2015. The Washington Committee continues to press Congress for a permanent fix to the Sustainable Growth Rate (SGR) formula problem.

Responding to the new threat of CMS pay-for-performance (P4P) measures to neurosurgical practices, the Washington Committee formed the Quality Improvement Workgroup and lobbied against "punitive" P4P payment schemes. Organized neurosurgery successfully led an effort to modify the AMA's P4P principles and guidelines to ensure that P4P programs reward, not punish, physicians for delivering quality healthcare. In addition, working with other medical organizations, particularly the Alliance of Specialty Medicine, the Washington Committee blocked P4P legislation that would have resulted in additional cuts in neurosurgeons' reimbursement.

## NREF

A member of the Neurosurgery Research and Education Foundation (NREF) Scientific Advisory Committee since 1989, Robert G. Grossman, MD, has helped the NREF increase the number and scope of grants awarded annually. In fact, more grants were awarded in 2006 than in any year since the inception of the NREF 25 years ago. He has streamlined the grant submission process and set the bar high on standards for review. Dr. Grossman has acted as a trusted mentor to applicants and awardees over the years.

"Through these grants, the NREF has the ability to fund research that may one day lead to critical scientific

breakthroughs in the treatment of Parkinson's disease, brain and spinal cord injury, epilepsy, stroke, brain tumors, and a host of other devastating neurological conditions," said Dr. Grossman. "It is very rewarding to be able to participate in a foundation that is committed to fostering today's neurological research — stepping stones to tomorrow's cures."

*Dr. Grossman is director of the Neurological Institute, and chairman of the Department of Neurosurgery at The Methodist Hospital, Houston, Texas.*



**Robert G. Grossman, MD**

NREF Scientific Advisory  
Committee Chair

## Emergency Neurosurgical Care

The Washington Committee was proactive in finding solutions to the current shortage of on-call specialists. In a recent Institute of Medicine (IOM) report on the state of emergency care in the United States, the IOM adopted neurosurgery's recommendations, finding that regionalizing certain emergency services, improving reimbursement and adopting medical liability reform will help ease the shortage of on-call physicians. Organized neurosurgery continued to prevent any changes to EMTALA, including an effort by the hospital associations to require mandatory on-call as a condition for Medicare reimbursement.

## Innovative Member Benefits — Expanding the Spectrum

The AANS is committed to developing products and services to benefit its members. Offering these for sale helps the AANS diversify revenue sources and reduce reliance on member dues. On a regular basis, members and leaders identify practice needs that would best be served by companies with specialty expertise. To address those needs, AANS joins with select outside partners to offer programs that can help members personally or professionally. In 2006, the AANS negotiated for members to receive preferred pricing/discount rates or exclusive benefits on offerings such as:

- AANSCodingToday.com: A searchable, online database that brings together all the claims coding resources and educational material a surgical practice needs
- Long-term care insurance administered by John Hancock Life Insurance Company



- NextGen® EMR systems: Electronic medical records systems that can help physician practices improve quality, reduce risk, cut costs and increase revenues
- TotalChart: A complete and portable electronic chart and cost-effective EMR that operates from a hand-held computer
- I.C. System professional debt collection program
- Pennywise office supply purchasing program

### A Seamless Blend of Internet Technology and Tradition — Enhancing Member Benefits

Seventy-five years ago, nobody could have possibly envisioned the technology we have at our fingertips today. The Association's three Web sites, AANS.org, MyAANS.org, and NeurosurgeryToday.org are ever-evolving and continue to be an invaluable resource for both members and the general public.

The Current News page of [www.AANS.org](http://www.AANS.org) helps members stay informed about breaking news. A special Hurricane Katrina Web page included many resources for displaced physicians, as well as for those looking to lend their time to assist in hurricane relief efforts.

## NREF



### Emad Eskandar, MD

Young Clinician Investigator  
Award Recipient

Disorders of the basal ganglia result in a variety of disabling movement disorders, the most common of which is Parkinson's disease (PD). With an estimated 60,000 new cases of PD diagnosed each year, and an estimated one to 1.5 million Americans living with the disease, neurosurgical research into potential treatments and cures is crucial.

It is with that worthy goal in mind that Emad Eskandar, MD, embarked upon research that may one day lead to new treatments for PD and other movement disorders. "I am grateful to have been awarded the opportunity by the NREF to expand on a clinical area of research that has incredible potential to help so many people affected by devastating neurological movement disorders," stated Dr. Eskandar.

"The goal of our research is to understand the role of the basal ganglia in adaptive learning and motor control in awake-behaving primates and in human subjects undergoing surgery," said Dr. Eskandar. "It is our hypothesis that the basal ganglia function to rapidly facilitate or associate certain stimulus-response mappings based on the likelihood of obtaining reward." Dr. Eskandar's one-year grant was co-sponsored by Medtronic Neurological.

*Dr. Eskandar is the director of Stereotactic and Functional Neurosurgery and co-director of the Surgical Epilepsy Unit at Massachusetts General Hospital in Boston, Mass.*



Voting members of the AANS are able to access voting issues on [www.AANS.org](http://www.AANS.org). In July 2005, AANS voting members approved a Bylaws amendment which requires all nominees for the offices of President or President-Elect to have prior experience as elected members of the AANS Board of Directors. This ensures that nominated individuals have experience and familiarity with the management and operation of the organization. Also approved were two Bylaws Amendments refining the procedures of the Professional Conduct Committee.

Launched in August 2005, the new and improved AANS Online Marketplace makes ordering faster and easier, and offers many new options. There are expanded product descriptions with the table of contents or sample pages available for select items. Users can search for items by category, or use enhanced search options.

Upgrades to MyAANS.org included giving annual meeting attendees the ability to self-report the amount of CME they can claim for attendance at non-ticketed educational programs. Individuals serving on AANS committees now have an area to obtain full contact rosters for their respective committee's members; an event manager to identify date, time, and location of upcoming meetings; and most importantly, a committee archive of past minutes and other valuable documents. The archive allows new and present committee members the ability to review past activities of the committee for verification of facts or to become familiar with goals.

Looking for up-to-date neurosurgical information to share with your patients? The user-friendly Web site, [www.NeurosurgeryToday.org](http://www.NeurosurgeryToday.org), has undergone extensive improvements, including the addition of color fact sheets covering patient safety topics such as injury prevention that can be downloaded. All of the topics under Conditions & Treatments have been completely rewritten and

updated. The most up-to-date information is provided on a wide range of neurosurgical conditions and diseases. Included are essential components such as prevalence and incidence statistics, risk factors, symptoms, diagnosis, and both surgical and nonsurgical treatment options. New topics are added on an ongoing basis.

### The Written Word — Continuing a Tradition of Excellence

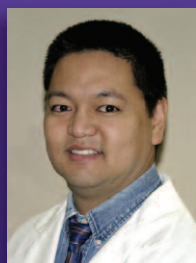
The AANS *Bulletin* rates consistently high as a member benefit by providing well-researched articles that highlight breaking socioeconomic issues affecting the field of neurosurgery. This year, the *Bulletin* raised the bar with in-depth peer-reviewed articles and an artistic vision brought to fruition on the Volume 15, Number 1, 2006 cover, which also featured four-color printing throughout. Cover articles included: *Measuring Quality: First Choose the Right Tool*; *Time Tells: Residents Get Less Operative Experience After Workweek Restrictions*; and *Behind Every Successful Practice: Sound Data — Neurosurgical Practice Survey Results*.

The AANS added several new books to its catalog of offerings, including *Controversies in Neurological Surgery* by Michael T. Lawton, MD. Co-published by Thieme and AANS, *Controversies* confronts many of the topics fueling neurosurgical discussions, including detailed coverage of treatments for ischemic diseases such as extracranial and intracranial atherosclerosis.

## NREF

### Joseph G. Ong, MD

#### Research Fellowship Award Recipient



In the United States, an estimated 250,000 people are living with spinal cord injury (SCI), and every year, there are about 11,000 new cases of SCI.

While recent advances in emergency care and rehabilitation allow many SCI patients to survive, methods for reducing the extent of injury and for restoring function are still limited. With that in mind, Joseph G. Ong, MD, set

out one year ago to better understand the brain-machine interface with the hope of developing clinically useful human neuroprosthetics for people living with SCI and other conditions causing paralysis.

Some promising research has been done to date in this field utilizing prosthetic devices in primates. "Our research explores the development of new electrodes, amplifiers, interfaces and effectors that may one day enable SCI patients to perform tasks as elaborate as those performed by primates," said Dr. Ong.

Initial experiments involved the implantation of neurotrophic electrodes into rat brains, with follow-up research utilizing primates. "The surgical experi-

ences with both rats and primates over the past year should greatly enhance our abilities to successfully implant acute and chronic electrodes in primates," stated Dr. Ong.

"I am thankful to the NREF and DePuy Spine for giving me this once-in-a-lifetime opportunity to pursue important scientific research applicable to patients living with SCI and other devastating disabilities," concluded Dr. Ong. Dr. Ong's one-year grant was cosponsored by DePuy Spine, a Johnson & Johnson Company.

*Dr. Ong is a senior resident in Neurosurgery at the University of Pittsburgh in Pittsburgh, Pa.*

# Twenty-Five Years of a Worthy Tradition — Advancing Neurosurgical Research

Celebrating 25 years of supporting promising neurosurgical research, the Neurosurgery Research and Education Foundation (NREF) was created in 1981 as a response to the alarming decline in federal and private funding for medical research. Since the NREF awarded its first grant in 1983, a steady increase in support has led to the granting of 113 awards. The vast majority of the residents and young clinicians/researchers who have received NREF grants, continue to contribute significantly to neurosurgical research in their professional careers.

Members stepped up and increased their giving this fiscal year. There were 334 first-time donors, the number of donations increased by 7 percent, and the total monetary contributions increased by 12 percent. Dues invoices generated 802 gifts totaling \$134,122.77, a substantial increase from the previous year. Celebrate a Life, the donation program which enables people to give in honor or in memory of friends or loved ones, also showed an increase in both public and member giving.

Through the generous support of members, corporations, and the public, the NREF continued its legacy of support by awarding a total of nine research grants in 2005-2006. Of the nine grants, three were cosponsored by corporations.

## Young Clinician Investigator Awards (\$40,000 for one-year)

- Gavin W. Britz, MD, University of Washington, *Cerebral Arteriolar Reactivity Following Subarachnoid Hemorrhage in a Mouse Model*
- William T. Curry Jr., MD, Massachusetts General Hospital, *Herpes Simplex Virus Oncolytic Immunotherapy for Brain Tumors*
- Emad Eskandar, MD, Massachusetts General Hospital, (cosponsored by Medtronic Neurological), *Role of Basal Ganglia in Visual-Motor Learning*
- James W. Leiphart, MD, George Washington University, (cosponsored by Kyphon Inc.), *Dorsal Root Ganglion and Spinal Cord Alpha2-Adrenergic Receptors in Neuropathic Pain: A Binding Study*
- Stephen Russell, MD, New York University, *Netrin-1 and the Homing Behavior of Regenerating Axons in the Axolotl*

## Research Fellowship Award (\$40,000 for one year, \$70,000 for two years)

- Daniel P. Cahill, MD, (2-Year), Massachusetts General Hospital, *Analysis of Oligodendroglioma Gene Expression Profiles*
- Ali Chahlav, MD, MS, (1-Year), Cleveland Clinic, *GBM Immunotherapy with Desferoxamine*

## DEVELOPMENT



**Jon H. Robertson, MD**  
AANS Development Committee Chair

Jon H. Robertson, MD, is a firm believer in the philosophy that corporate support is an essential component to furthering neurosurgical research and education. He also knows that for any such partnership to work seamlessly, very strict guidelines must be implemented. As Chair of the AANS

Development Committee, Dr. Robertson kept that in mind when creating the AANS *Guidelines for Corporate Relations*, the Pinnacle Partners Program, and the brand new, Corporate Leadership Council.

This philosophy was further realized in the first-ever resident course sponsored by the AANS. The brainchild of Dr. Robertson, *Endovascular Techniques for Residents* was attended by 14 senior neurosurgical residents on April 1, 2006, at the Medical Education and Research Institute (MERI) in Memphis, Tenn. Course Director Robert H. Rosenwasser, MD, FACS, led the course alongside faculty including B. Gregory Thompson, MD, Elad I. Levy, MD, Erol Veznedaroglu, MD, and Charles J. Prestigiacomo, MD.

"Through the generous support of Boston Scientific, Micrus Endovascular and Cordis Neurovascular, Inc., the

AANS was able to host a wonderful educational opportunity, at no cost to residents," said Dr. Robertson. "For the corporate sponsors, this course provided a unique chance for industry representatives to participate side-by-side with residents, providing instruction and showcasing their newest technologies in a more intimate setting than usual."

The state-of-the-art facility offered at MERI, and the high teacher-to-student ratio contributed to the great success of this course," stated Dr. Robertson. "I look forward to fostering future partnerships that blend corporate support and education so smoothly," concluded Dr. Robertson.

*Dr. Robertson is professor and chair of the Department of Neurosurgery at the University of Tennessee Health Science Center. He is also a practicing member of the Semmes-Murphey Neurologic and Spine Institute in Memphis, Tenn.*



- Suresh N. Magge, MD, (1-Year), University of Pennsylvania, *The Role of Chemokines in Regulating Neuronal Stem Cell Migration towards Brain Tumors*
- Joseph G. Ong, MD, (1-Year), University of Pittsburgh, (cosponsored by DePuy Spine, a Johnson & Johnson Company), *Design of a Human Cortical Neural Prosthetic*



### **Eighth Annual Silent Auction Continues a Fun Tradition While Supporting Invaluable Research**

The Eighth Annual Silent Auction at the 2006 AANS Annual Meeting in San Francisco, coordinated again by the Young Neurosurgeons Committee (YNC), was a successful and fun event for donors and bidders alike. Featuring an exciting potpourri of items, ranging from a large, framed print donated by a world-class artist, historical memorabilia, and fine jewelry, the auction attracted lively bidding at the AANS Resource Center. YNC member Edward Vates, MD, PhD, University of Rochester, the auction's chairman, was happy to report that the auction netted \$30,308 in support, an increase of more than \$7,000 from the previous year.

### **Expanding Corporate Giving**

As a prominent investor in research and education, corporate partners play a vital role in supporting the NREF's goal of advancing the specialty of neurological surgery to provide the highest quality of neurosurgical care. The Corporate Associates Program enables industry to help support young researchers working on potential treatments and cures for neurosurgical diseases and conditions that affect millions of people.

The Pinnacle Partners Program, now in its third year, helps the AANS continue its tradition of offering innovative educational programming throughout the year. This sponsorship offers companies a unique opportunity to establish added recognition and greater visibility by connecting with AANS members. The AANS gratefully acknowledges the support of the following Pinnacle Partners companies.

### **Five New Pinnacle Partners**

- Boston Scientific
- Cordis Neurovascular, Inc.
- Medtronic
- Micrus Endovascular
- Carl Zeiss Surgical Inc.

### **Two Pinnacle Partners that Renewed their Support**

- Kyphon Inc.
- Stryker

## **SUPPORT 2005-2006**

The Neurosurgery Research and Education Foundation (NREF) gratefully acknowledges and appreciates the generous support of the following individuals, groups and corporations, who made their contributions from July 1, 2005 through June 30, 2006.

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Seth M. Weingarten, MD

# 2006 Financial Summary

The AANS continued its strong financial stability in fiscal year 2006. Worth noting is that this is the fifth consecutive year in which the AANS has posted a positive operational bottom line. Net operating income of \$135,653 coupled with an additional \$560,064 in interest and investment revenue equated to a respectable final total net income of \$695,717. This strong financial footing has enabled the Board of Directors to once again keep AANS membership dues at the same rate since 2001 — five consecutive years with no dues increase.

For five years, the AANS leadership and staff have focused on financial awareness and an informed financial management process. Integral to this financial success is the keen insight the Finance Committee has provided with their monthly review of financial information, discussion of nearly every line item, and decisions on appropriate investments.

This report reflects the combined financial statements of the American Association of Neurological Surgeons and the American Association of Neurosurgeons covering the period of July 1, 2005, through June 30, 2006.\*

## Revenue

Gross revenue improved a little more than \$865,000 from fiscal year 2005. Every revenue category posted an increase from the previous year, with the exception of one.

- Revenue for the 2006 AANS Annual Meeting finished \$513,000 better than the previous year. The main reason for the increase is related to the attractiveness of San Francisco as a convention destination. San Francisco continues to be an exceptional host city for AANS Annual Meetings.
- The *Journal of Neurosurgery* posted an increase in gross revenue of \$308,412. More than half of the increase can be attributed to an increase in advertising revenue, with the balance generated from subscription revenue.
- The area of decrease from the previous year was in the area of Professional Development. The decrease of \$196,800 can be attributed to a decrease in the number of meetings held in 2006 compared with the previous year.
- The pie chart (Page 19) indicates the various sources of income. The AANS' reliance on dues income went from 15.0 percent of gross revenue in fiscal year 2005 down to 14.3 percent in fiscal year 2006.

## Expenses

Gross expenses increased nearly \$2,000,000 inclusive of all areas, with the exception of Professional Development, which posted a decrease. Unanticipated and unusual expenses in the Contract Services and Committees areas amounted to \$450,000 of this increase.

- The 2006 AANS Annual Meeting in San Francisco was a little more expensive than the 2005 meeting in New Orleans. However, increased attendance at a meeting generally equates to greater expenses than anticipated.
- The increase in the number of journals produced by the *Journal of Neurosurgery* and a reorganization of staff contributed to a \$450,000 increase in expenses.
- Professional Development course expenses decreased \$110,000 from 2005 because of a decrease in the number of meetings offered.

All year-end financial statements of the AANS are reviewed by outside auditors. Any material differences between a published financial statement and the auditors' report are communicated to AANS members in the AANS *Bulletin*. Copies of the most recent audit are available to members by writing to: AANS Accounting Department, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008-3852.

\* The American Association of Neurological Surgeons is a 501(c)(6) organization; the American Association of Neurosurgeons is a 501(c)(3) organization.



# Statement of Financial Position

6/30/06

## ASSETS

Cash and Investments	10,473,376
Other Current Assets	2,857,610
Property and Equipment, net	3,587,437
Other Assets	465,969
<b>Total Assets</b>	<b>\$17,384,392</b>

## LIABILITIES AND EQUITY

### Liabilities

Accounts Payable and other Current Liabilities	6,127,440
Note Payable	0
<b>Total Liabilities</b>	<b>\$6,127,440</b>

### Equity

Beginning Net Assets	10,561,235
Net Income	695,717
<b>Total Equity</b>	<b>\$11,256,952</b>

<b>Total Liabilities and Equity</b>	<b>\$17,384,392</b>
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## INCOME STATEMENT

### Revenue

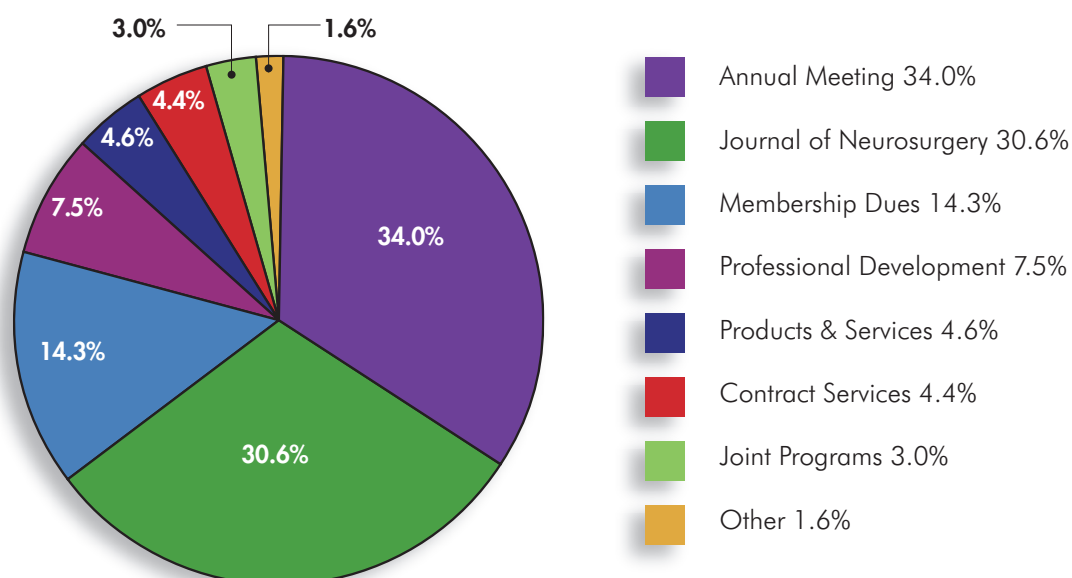
Operating Revenue	14,112,557
Operating Expenses	13,976,904

<b>Net Operating Income (Loss)</b>	<b>\$135,653</b>
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Non-Operating Activities	560,064
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<b>Net Income (Loss)</b>	<b>\$695,717</b>
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## FY2006 SOURCES OF REVENUE



## 2005-2006 Leadership

### Officers

Fremont P. Wirth, MD  
President  
Donald O. Quest, MD  
President-Elect  
Robert L. Grubb Jr., MD  
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Jon H. Robertson, MD  
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### Regional Directors

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Paul E. Spurgas, MD  
Clarence B. Watridge, MD  
Edie E. Zusman, MD, FACS

### Historian

Eugene S. Flamm, MD

### Ex-Officio

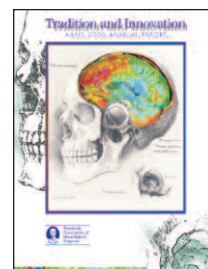
Rick Abbott, MD  
Lawrence S. Chin, MD, FACS  
Fernando G. Diaz, MD, PhD  
Robert F. Heary, MD  
Andres M. Lozano, MD, PhD  
Dennis E. McDonnell, MD  
Richard K. Osenbach, MD  
Robert H. Rosenwasser, MD, FACS  
Alex B. Valadka, MD, FACS  
Ronald E. Warnick, MD

### Liaisons

Richard G. Ellenbogen, MD, FACS  
Isabelle M. Germano, MD, FACS  
Mark G. Hamilton, MD

### AANS Executive Office

5550 Meadowbrook Drive  
Rolling Meadows, IL 60008-3852  
Phone: (847) 378-0500  
Toll-free: (888) 566-AANS (2267)  
Fax: (847) 378-0600  
E-mail: [info@AANS.org](mailto:info@AANS.org)  
[www.AANS.org](http://www.AANS.org)  
[www.NeurosurgeryToday.org](http://www.NeurosurgeryToday.org)



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### Executive Director

Thomas A. Marshall

### Deputy Executive Director

Ronald W. Engelbreit, CPA

### Associate Executive Director

Susan M. Eget

### Associate Executive Director- Education & Meetings

Joni L. Shulman

### Departments

Communications  
Development  
Education & Meetings  
Governance  
Information Services  
Journal of Neurosurgery  
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5550 Meadowbrook Drive  
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