AANS PRESIDENT’S MESSAGE

Members of the American Association of Neurosurgical Surgeons:
The opportunity and honor of serving as president of this remarkable association over the past year has been a major highlight of my career in our remarkable specialty. Serving as president of the AANS provides the opportunity to meet intimately with our members across our state and regional societies as well as to travel the world, as the AANS is a continental society of the World Federation of Neurosurgical Societies (WFNS).

These unique encounters help to frame one’s thinking and priorities for what proves to be a remarkably short year. I have been so proud and comfortable with our initiatives in Washington, D.C. under the leadership of Katie O. Orrico, JD, and our Washington Committee that I saw my role as “send me in, coach.” I had the opportunity to testify and participate in a number of events on Capitol Hill which I hope will prove helpful to our members. Under the leadership of Shelly D. Timmons, MD, PhD, FAANS, who serves as the new chair of our Washington Committee, we can all feel extremely comfortable that we will be impactful and protect public access to specialty care going forward.

Ours is a truly honorable and wonderful profession. We and our successors must preserve its unique culture and in so doing will strengthen medicine overall with neurosurgery leading the way.

During the 84th AANS Annual Scientific Meeting, I tried to craft a message of hope and optimism that was truly from the heart. In many ways, we have all been battered by a rapidly evolving health care system, which at times seems to be spiraling out of control. As this is an election year, I felt that diving into the weeds of all the potential outcomes regarding health policy would not be productive or beneficial for any of us, as the election will dictate many of these specific policy outcomes. Rather, I wanted to focus on the core values of our profession and how neurosurgery leads the way in American medicine.
The Opening Ceremonies featured experts from professional sports, the military, the Defense Advanced Research Projects Agency (DARPA) and the National Institutes of Health (NIH) focusing on all elements of the major public health disaster of traumatic brain injury (TBI). This broad discussion was moderated by our own Sanjay K. Gupta, MD, FAANS. Audience interaction was facilitated by unique technology that shared literally hundreds of member-generated questions of major importance, only some of which were able to be discussed by Dr. Gupta and the rest of the panel. We are saving the rest for use in subsequent engagement opportunities with our membership, including our blog.

Our invited named lectureships followed the theme of the 2016 Annual Scientific Meeting with General Peter W. Chiarelli providing the Hunt-Wilson Lecture. General Chiarelli has been a fierce advocate in the last two military theaters for the protection of our soldiers. He was very distressed at the frequency of major head trauma and incidence of post-traumatic stress disorder (PTSD) experienced by returning soldiers. He formed a foundation focused on providing relief and finding a pathway for a return to society for those who have served their country. Alim-Louis Benabid, MD, PhD, FAANS, who won the 2014 Lasker Prize, was the Richard Schneider Lecturer. He developed an entirely new path forward, having discovered the field of deep brain stimulation (DBS). The Ted Kurze Lecture was delivered by Thomas J. Nasca, MD, who is the CEO of the Accreditation Council of Graduate Medical Education (ACGME). Dr. Nasca’s entire career has been focused on optimizing the education and training of the next generations of physicians so that we provide the best possible care available to the public.

A major highlight of the meeting was the Cushing Oration delivered by President George W. Bush. In his hour-long exchange, members gained real insight into the decision-making process undertaken by American presidents as well as the challenges they face. I hope my own amateur interview skills did not detract from his message!

For the Louise Eisenhardt Lecture, Maria Siemionow, MD, PhD, was selected. She pioneered the first face transplant. The Rhoton Family Lecturer was Jose Francisco Salgado, PhD, an astronomer, photographer and musician. He has created an entirely new discipline that brings art to scientists and science to artists. The Van Wagenen Lecturer is a great friend of mine, Col. Geoffrey Ling, MD, PhD, (Ret.), who, after a distinguished military career, served the Obama Administration in the technology division and took over a leadership role at DARPA. He performed three prospective randomized trials using hyperbaric oxygen for brain injuries suffered on the battlefield.
In my presidential address, I tried to focus on the question "Who are we?" I have been blessed by serving so many roles on behalf of neurosurgery and our members over the years that I have gained a unique perspective on exactly what makes us, as neurosurgeons, so unique and special. I focused on our roles as innovators, our social contract, the challenges to fulfilling that contract, our unique culture and also provided some specific recommendations as a charge going forward.

As innovators, we have a most distinguished past, both in science, technical medicine and education. Our boot camps have certainly led the way in U.S. medicine in that our incoming residents receive their basic training in a totally risk-free environment. The AANS medical student chapters are another remarkable development: We now have over 1,500 members who are still in medical school and who are being attracted to the neurosciences. Our Neurosurgical Summit, convened under the aegis of the Society of Neurological Surgeons (SNS), allows our specialty, including our membership societies, our Board, our RRC and our Washington Committee, to testify before Congress, the National Academies, the Centers for Medicare & Medicaid (CMS) or any other regulatory environment, as an Academy rather than a Membership Society, which is seen as conflict. This structure allowed us to respond over the past couple of years to severe challenges in the areas of neurocritical care and endovascular neurosurgery in ways that are unprecedented in the house of medicine. We linked the SNS CAST committee with the ACGME to enrich our accreditation process for enfolded and post-graduate fellowships, and we linked CAST with the American Board of Neurological Surgery (ABNS) to certify when necessary.

The neurosurgical social contract is one of the key differentiators that separates medicine, particularly neurosurgery, from other sectors of the economy. If we think of the current political discussions, it is starkly obvious that physicians are not treated the same as, for example, politicians. Our public has certain expectations of us: primarily that we will be there when they need us, and we will treat them with compassion and beneficence. In return, they treat us with the great honor and trust that each of us experience daily in our practices. Under our social contract, we are committed to all aspects of patient safety and quality and also to serving as a court of last appeal for patients with horrible conditions. We must be there for them.

I also discussed the challenges we face in meeting our social contract: de-professionalism and commoditization of medicine and surgery, the loss of professionalism created by duty-hour restrictions, the primary care-centric IOM GME report of 2014 and issues around “copy and paste” in the new electronic medical records (EMRs), which are creating a new type of medical error, e-iatrogenesis. I discussed my concern that the new area of subspecialty certification puts us at risk of fragmenting our specialty as has happened in so many other fields. I urged our Board and the SNS to certify only when absolutely necessary. In my view, we should focus only on pediatric neurosurgery, neurocritical care and endovascular neurosurgery.
We have quite a unique culture in our field. In my mind, it can be summarized as “excellence and exceptionalism.” Our patient-physician relationship is incredibly different from other specialties as patients are confronted with their own mortality, or worse, when they come to see us.

As a charge going forward, I strongly recommended that we stop the trend of de-professionalism and commoditization immediately by maintaining higher standards, supporting research, fixing the Maintenance of Certification (MOC) process and fighting new duty-hour restrictions, which have been shown to be of no benefit to our patients. I also emphasized protecting the shield to make sure flawed individuals do not make it through neurosurgical training and certification, as it violates our social contract and puts the public at risk. I believe that our discipline can play a major role in fixing the Veterans Administration (VA) fiasco and would hope that this fundamentally-flawed organization can be progressively and incrementally defunded and the savings passed on into charge cards for our veterans that could confer Medicare-level coverage to be purchased wherever they desire to seek care.

I see our international outreach as a major opportunity. In our role as the North American continental society in the World Federation, we have had major impact reflecting the strength of our brand. We now have an incredible asset, Walter D. Johnson, MD, FAANS(L), who is uniquely positioned at the World Health Organization (WHO) in Geneva. Imagine the possibility of North America joining the WHO in creating new disruptive technologies to manage some common neurological problems, such as TBI or hydrocephalus, and getting the support of major funding agencies such as the Bill and Melinda Gates Foundation to create a uniquely transformative global impact.

Ours is a truly honorable and wonderful profession. We and our successors must preserve its unique culture and in so doing will strengthen medicine overall with neurosurgery leading the way.

H. Hunt Batjer, MD, FAANS
2015-2016 AANS President
EXECUTIVE DIRECTOR’S MESSAGE

On behalf of the American Association of Neurological Surgeons (AANS), the Neurosurgery Research & Education Foundation (NREF) and NeuroPoint Alliance (NPA), it is my pleasure to present the 2016 Annual Report to membership and stakeholders. The AANS has evolved quickly in recent years. Its foundation, the NREF, is rapidly developing successful new ways to attract philanthropy meaningful to our members, with education and services suited to today’s membership. Its data collection arm, the NPA, has earned a national reputation for high-quality registry programs. Now armed with maturing data, the NPA is taking the next step of developing the individual and collective tools necessary to use registry data to guide objective quality improvement. These organizations work closely with the AANS, as a professional society, to support members in their career advancement and educational growth, attract and cultivate the next generation of neurosurgeons, represent U.S. neurosurgeons among national and international stakeholders and advocate for more favorable practice environments that enable members to provide the best care for their patients. This Annual Report highlights the major accomplishments the AANS, NREF and NPA have achieved in fiscal year 2016. It is an honor to assume the role of Executive Director after 16 years of working with leaders and members at the AANS. I would like to thank our stellar management team and talented, dedicated staff for their contributions to this year’s achievements.

Kathleen T. Craig
Executive Director
NEUROSURGERY
LEADING THE WAY
The 84th AANS Annual Scientific Meeting
April 30–May 4, 2016

Chicago provided a beautiful backdrop for the 2016 AANS Annual Scientific Meeting, which explored the many ways in which neurosurgery has taken the lead in fields as seemingly far ranging from medicine as professional sports and the military.

An engaging and thoughtful opening ceremonies had CNN and neurosurgery’s own Sanjay K. Gupta, MD, FAANS, leading a panel of diverse experts through a discussion on head trauma. Panelists included Russ Lonser, MD, FAANS; Gen. Peter W. Chiarelli (Ret.); Col. Geoffrey Ling, MD, PhD (Ret.) and Walter Koroshetz, MD, the National Institutes of Health’s [NIH] director of the National Institute of Neurological Disorders and Stroke [NINDS]. Representing the National Football League [NFL] were its senior vice president of health and safety, Jeff Miller, and former Chicago Bear and Hall of Famer, Mike Singletary. A video of the session is available on the Neurosurgery S.P.O.R.T.S. website.

After the presentation, attendees made their way to Soldier Field for the AANS Opening Reception. Guests were given access to views of the field and the outdoor terrace of the historic stadium, where lightning highlighted a dramatic Chicago skyline and rain fell, yet failed to dampen the spirits or enthusiasm of those present.
2016 CUSHING ORATOR, GEORGE W. BUSH

On May 3, 2016, President George W. Bush sat down with H. Hunt Batjer, MD, FAANS, in front of a packed audience in excess of 2,800 to discuss topics ranging from his relationship with his father, the hard lessons of 9/11 and a belief that America can overcome its challenges no matter the current economic, social or political climate.

The two native Texans engaged in lighthearted banter as Bush reflected on his childhood, emphasizing that it was a time when “neighbors took care of neighbors.” He spoke fondly of his father’s ability to place faith above all things, to accept defeat with grace and to foster an independent spirit in his children without casting a shadow.

When asked how the environment of the late 1960s — Bush’s post-Yale years — framed his thoughts, Bush was quick to remind his audience of America’s history of tough times, citing the Martin Luther King Jr. riots, Vietnam and the Bobby Kennedy assassination. He said, “America will always return to its founding principles and reclaim its important role on the world stage.” In a clear reference to the current discourse on America’s future vis-à-vis the presidential campaign, he stated, “The institution of president is more important than its occupant. The institution protects us in the long run. It is important to remember the history of the U.S. in order to be optimistic about its future.”

Bush’s presidency will always be linked to the largest terrorist attack on American soil. In response to Batjer’s question on the lessons learned from 9/11, Bush said, “Project calm. Evil is real. And how others live matters.” Commenting on becoming a wartime president overnight, Bush shared his insistence on the importance of wise counsel, a coherent strategy and unwavering determination to follow through on a course of action once a decision has been made. Several times during the interview, he referred to the children of the Booker Elementary School second grade classroom (where he was promoting his education program the morning of the attacks), emphasizing that every tough decision he made in the wake of 9/11, he kept in mind the safety and future of those innocent lives.

At the end of the interview, the conversation turned to The Bush Institute. Since its inception in 2013, George W. and Laura Bush have focused on several initiatives to improve the human condition based on the principles of self-responsibility, freedom and opportunity for all and the empowerment of women. “America cannot resort to isolationism, protectionist policies or nativism,” said Bush. Rather, the U.S., must be reminded that “democracy takes time” and look optimistically towards a future which encourages partnership, leadership and liberty.
Hunt-Wilson Lecture
Gen. Peter W. Chiarelli (Ret.)
Gen. Chiarelli began his presentation by noting that, given his audience, it probably was not a good time to get a head injury anywhere but Chicago, at least during the AANS’s Annual Scientific Meeting. He spoke of the challenges of developing a concussion protocol when the Center for Disease Control and Prevention (CDC) has 42 definitions for the term. He begged the audience to engage in data collection, sharing and curation, all of which he believes will provide the framework for a successful and impactful concussion screening tool.

Richard C. Schneider Lecture
Alim L. Benabid, MD, PhD, IFAANS
Dr. Benabid presented “Functional Neurosurgery: Electrons, Photons, Exoskeletons.” He began his lecture reminding the audience that doctors treat symptoms and are only occasionally able to treat the disease. Parkinson’s disease is an emblematic example of this. Benabid then shared how he developed and evolved his ground-breaking treatment of Parkinson’s.

Rhoton Family Lecture
Jose Francisco Salgado, PhD
Salgado’s work – photography – lives in what he calls the intersection of science and art. His art plays with capturing and translating things that naturally happen either too slowly or too quickly for the human eye to capture. He ended his presentation by sharing one of his movies and reminding the audience that his work demonstrates that science and art are not mutually exclusive.

Van Wagenen Lecture
Col. Geoffrey Ling, MD, PhD (Ret.)
Col. Ling spoke passionately about how he believes that problems can best be solved. His approach is to work at solving very specific, well-defined problems, one at a time. When the parameters are well-defined, solutions are most efficiently and quickly achieved by a managed-milestone driven team that has been properly funded for success.
84TH AANS ANNUAL SCIENTIFIC MEETING
Distinguished Honorees

AANS Cushing Medal
Ralph G. Dacey Jr., MD, FAANS

AANS International Lifetime Recognition Award
Edgardo Spagnuolo, MD

AANS Distinguished Service Award
Blas Ezequiel Lopez Felix, MD, FAANS

AANS Cushing Award for Technical Excellence and Innovation in Neurosurgery
L. Dade Lunsford, MD, FAANS

AANS Humanitarian Award
Karin M. Muraszko, MD, FAANS
Each year, since 2006, the AANS Neurosurgical Top Gun Competition has provided a forum for residents and fellows to test their skills at various surgical simulation stations and be awarded a score for their efforts. The top scorer at each station is awarded a cash prize. The participant with the best overall score receives a cash prize as well as a prize for his or her residency program.

**Top Honors—2016 Neurosurgical Top Gun**
- Jarod Roland, MD
  Washington University

**Lumbar Pedicle Screw**
- Jarod Roland, MD
  Washington University

**Trigeminal Rhizotomy**
- Timur Urakov, MD
  Jackson Memorial Medical Center

**3-D Navigation Challenge**
- Brian Snyder, MD
  University of Kentucky

**Myriad Minimally Invasive Tumor Resection**
- Eric Arias, MD
  Washington University

**Ventriculostomy**
- Dr. Paolo di Russo
  Universita degli Studi di Firenze

**Top Medical Student**
- Jared B. Cooper

**First Place in the Team Competition**
- Washington University
  Eric Arias, MD
  Jarod Roland, MD

**Supported by:**
- Immersive Touch
- Medtronic
- NICO Corporation
- Surgical Theater
- University of Florida
The AANS wishes to thank the following companies for their support of the 2016 AANS Annual Scientific Meeting:

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The AANS wishes to thank the following companies for providing educational grants to support the 2016 AANS Annual Scientific Meeting:

Boston Scientific Neuromodulation
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The AANS wishes to thank the following companies for providing gifts in-kind to support the 2016 AANS Annual Scientific Meeting:

Ad-Tech Medical Instrument Corporation
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Cosman Medical
DePuy Synthes, Companies of Johnson & Johnson
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Integra LifeSciences
joimax Inc.
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Medtronic Neurologic Technologies
Medtronic Neuromodulation
Medtronic Spinal and Biologics
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Penumbra Inc.
RAUMEDIC, Inc.
Richard Wolf Medical Instruments Corporation
Samsung
Spine Wave Inc.
St. Jude Medical
Stryker Neurovascular
Synthes CMF
Varian Medical Systems
Zimmer Biomet
In response to demand from international members and meeting attendees for more international programming, the AANS expanded its international initiatives during the past year.

One of the most notable additions to the offerings is the new International Fellow of the American Association of Neurological Surgeons (IFAANS) designation. The AANS granted this distinction to almost 500 members. Those who have been international-dues-paying members for five or more consecutive years or those who have four consecutive years of membership and have attended one AANS Annual Scientific Meeting qualify to be designated as IFAANS. Many of those now bearing the IFAANS distinction have been members for many years.

Continuing in the tradition of last year, leaders from world organizations, continental societies and a regional society were hosted at the 2016 AANS Annual Scientific Meeting in Chicago and provided very valuable international insight and comradery. The AANS was pleased to welcome the following organizations through their representatives:

- Basant K. Misra, MD, Asian Australasian Society of Neurological Surgeons (AASNS)
- A. Graham Fieggen, MD, IFAANS, Continental Association of African Neurosurgical Societies (CAANS)
- J. André Grotenhuis, MD, PhD, IFAANS, European Association of Neurosurgical Societies (EANS)
- Edgardo Spagnuolo, MD, Federación Latinoamericana de Sociedades de Neurocirugía (FLANC)
- Amr El Shawarby, MD, Pan Arab Neurosurgical Society (PANS)
- Yong-Kwang Tu, MD, PhD, World Federation of Neurosurgical Societies (WFNS)
- Franco Servadei, MD, World Federation of Neurosurgical Societies (WFNS)
- Walter D. Johnson, MD, FAANS(L), World Health Organization (WHO)

This year, the meeting featured a collaboration between the AANS and FLANC and PANS. FLANC is made up of neurosurgeons from throughout Latin America while PANS is a regional society representing countries within the Arab world.

Due to a strong international showing last year, the 2016 AANS Annual Scientific Meeting featured an International Symposium extended to two days. In total, there were 47 speakers from 15 different countries who presented developments in neurosurgery from around the world. Members from the two collaborating societies were featured during the International Symposium. Also, attendees learned from their celebrated colleagues at the International Reception, held at the Chicago Cultural Center and toasted their collective achievements under the largest Tiffany glass dome ceiling in the world.
In addition to the AANS International Lifetime Recognition Award, other international awards included:

**AANS BEST INTERNATIONAL ABSTRACT AWARD**
This honor is awarded to the author of the highest-ranking international abstract submitted to the 2016 AANS Annual Scientific Meeting. This honor went to Hadie Adams, MD, from Cambridge, United Kingdom, for his abstract, “Characterizing the temporal evolution of ICP and Cerebrovascular reactivity after severe traumatic brain injury.”

**AANS INTERNATIONAL TRAVEL SCHOLARSHIP**
This scholarship provides funding to support the attendance of a neurosurgeon from a developing country to the AANS Annual Scientific Meeting. The 2016 recipient was Asra Al Fauzi, MD, IFAANS, from Surabaya, Indonesia, for his abstract, “Intraventricular Transplantation of Autologous Bone Marrow Mesenchymal Stem Cell in Hemorrhagic Stroke.”

The AANS also provides the International Visiting Surgeon Fellowship for neurosurgeons in developing countries to travel to North America for educational experiences.

The 2016 recipients were Claire Karekezki, MD, from Rwanda and Jude Kennedy Chinedu Emejulu, MD, from Nigeria.

Dr. Karekezki carried out her fellowship at the Brigham and Women’s Hospital at Harvard Medical Center under the guidance of Ennio Antonio Chiocco, MD, PhD, FAANS. Dr. Karekezki’s focus was on developing her knowledge around neuro-oncology as this specialty is limited in her country. Upon returning home, she will be the first female neurosurgeon in Rwanda.

Dr. Emejulu visited the Ochsner Medical Center in New Orleans and worked under the observation of Olawale A. R. Sulaiman, PhD. Currently, Dr. Emejulu is on the teaching staff at Nnamdi Azikiwe University in his home country and has a special interest in techniques to treat spinal diseases. This fellowship is the beginning of a partnership between the university and medical center. Dr. Emejulu hopes to establish a modern spine center in Nigeria.

The AANS also offers a fellowship supporting a post-neurosurgical resident travelling overseas for scientific enrichment, prior to beginning an academic career in neurosurgery. The William P. Van Wagenen Fellowship was designed to give freedom in scientific development without the restrictive limitations usually imposed by many research grants and fellowships. Read more about the Van Wagenen Fellowship on page 39 of this Annual Report.

Other accomplishments this past year in the advancement of international initiatives included the AANS’ participation at the following continental society meetings:

- **AACNS 2015** – Asian Australasian Congress of Neurological Surgeons, Jeju Islands, South Korea
- **FLANC 2015** – Federación Latinoamericana de Sociedades de Neurocirugía, Bogotá, Colombia
- **WFNS 2015** – World Federation of Neurological Surgeons, Rome, Italy
- **SMCN 2015** – Sociedad Mexicana de Cirugía Neurológica, Mazatlán, México
WASHINGTON COMMITTEE UPDATE

Neurosurgery Makes Significant Progress Advancing Health Policy Agenda

Through advocacy, policy development and public relations, the AANS/CNS Washington Committee and Washington Office have worked vociferously to defend and protect the ability of neurosurgeons to practice medicine freely and help to ensure the continued advancement of the specialty of neurological surgery. Together, the AANS and CNS have played a fundamental role in a number of health policy developments, including advocating for adequate reimbursement, pushing for medical liability reform, streamlining quality improvement reporting requirements and relief from the morass of government regulations. This work is critical, and organized neurosurgery’s Washington Office and leaders continue to be at the forefront of health policy debates to advance the specialty of neurological surgery to promote the highest quality of patient care to create a system that offers greater value tomorrow than it does today.

Throughout the year, the Washington Office staff are in the halls of Congress or working with government agencies and other health care stakeholders advocating on behalf of neurosurgery. In this role, the AANS frequently interacts with members of Congress, key government entities, including the Centers for Medicare & Medicaid Services (CMS), Food and Drug Administration (FDA) and Center for Disease Control and Prevention (CDC), third party payors and state and national medical associations. As a result of these interactions, organized neurosurgery has achieved a variety of advocacy successes.

P. David Adelson, MD, FAANS, represents the AANS at a Congressional briefing focusing on pediatric trauma. He is pictured here with Rep. Richard Hudson (R-N.C.), chair of the Congressional Pediatric Trauma Caucus. Geoffrey T. Manley, MD, PhD, FAANS, past chair of the AANS/CNS Section on Neurotrauma and Critical Care testifies at a U.S. House Energy and Commerce Oversight Subcommittee hearing on concussions.
FIGHTING FOR FAIR REIMBURSEMENT

The passage of the Medicare Access and CHIP Reauthorization Act (MACRA) presents an unprecedented opportunity to fix the currently broken and burdensome Medicare quality programs, which have little meaningful impact on quality and have been extremely disruptive to physician practices. To this end, the AANS and CNS have been on the front lines helping to guide the MACRA legislation through the implementation process to ensure that CMS gets this right and develops the new Medicare physician payment system as directed and intended by Congress.

In April 2016, CMS issued the proposal rules related to the main elements of MACRA. This legislation repealed Medicare’s sustainable growth rate (SGR) formula and replaced it with a new payment system. Through a single framework called the “Quality Payment Program,” the new payment paradigm has two paths — the Merit-based Incentive Payment System (MIPS) and Advanced Alternative Payment Models (APMs). The new program consolidates components of three existing Medicare penalty programs — Physician Quality Reporting System (PQRS), Electronic Health Record (EHR) and Value-Based Payment Modifier (VM) — and creates a quality opportunity for neurosurgeons to earn quality improvement bonus payments. Organized neurosurgery expressed serious concerns with the new proposed payment rules and urged CMS to make substantial changes before finalizing the payment overhaul. The program’s final rules will be released in late 2016, and the AANS plans to release a variety of educational materials to ensure that neurosurgeons are “MACRA ready” and can thrive under the new quality payment program.

Additionally, the AANS has aggressively challenged other third party payor coverage policies, which limit reimbursement for many common neurosurgical procedures. The Coding and Reimbursement Committee (CRC), along with representatives from the National Quality Council (NQC), Joint Guidelines Committee, the Joint Sections and Washington Committee work together to respond to these coverage issues to provide a balanced assessment of the current literature and experience with procedures under review. The CRC’s “Rapid Response Teams” are organized to lead these efforts and have provided comments on a variety of proposed coverage policies from Medicare and other payors, including Aetna, Anthem, various Blue Cross Blue Shield plans, Noridian, Washington State Health Care Authority and others. These comments involved topics such as cervical spine fusion, carotid artery stenting, intracranial stenting, lumbar spine fusion, pain management, percutaneous image-guided lumbar decompression, stereotactic radiosurgery and thrombolysis. One particularly successful initiative targeted more than 30 negative coverage policies related to endovascular intervention for acute ischemic stroke. As a result of organized neurosurgery’s advocacy, approximately 90 percent of these policies were reversed, with the health insurers now covering these therapies.

Finally, during the past year, the AANS, working with the Rapid Response Teams and the Council of State Neurosurgical Societies (CSNS), established a quarterly information tool, which informs neurosurgeons about significant local coverage policies, allowing our members to track and respond to these to ensure that neurosurgical patients get access to the full range of treatment options for neurosurgical care.
REGULATORY RELIEF

Faced with an ever-growing morass of regulations with which neurosurgeons must comply, the AANS, through the Washington Committee and Washington Office, has been working with Congress and regulators to reduce the burdens associated with practicing medicine.

This year, the AANS continued to oppose Medicare’s “two-midnight” inpatient-hospital policy due to concerns about increased physician hassles and audit exposure, as well as increased beneficiary financial liability. Neurosurgery’s advocacy efforts helped secure the inclusion of a provision in MACRA that suspended the Recovery Audit Contractors (RAC) program related to the two-midnight rule for an additional two years. Ultimately, CMS announced its plans to scrap the program altogether and allow hospitals to seek corrective reimbursements.

In addition to the relief provided by MACRA, the AANS successfully advocated for changes to Medicare’s existing Electronic Health Record (EHR) Incentive Program, otherwise known as meaningful use (MU). This ongoing advocacy resulted in a hardship exemption from Stage 2 MU penalties for the 2015 program year, which passed as part of the Patient Access and Medicare Protection Act (Public Law 114-115). Without this legislation, neurosurgeons could have faced a total of $21 million in payment penalties, or $5,250 per neurosurgeon. Additionally, as a result of organized neurosurgery’s efforts, House and Senate lawmakers introduced legislation to help shorten the 2016 MU reporting period from a full year to 90 days. The “Flexibility in EHR Reporting Act” (H.R.5001/S.2822) was introduced in both the House and Senate. In the Medicare Prospective Payment System (PPS)/Ambulatory Surgery Center (ASC) proposed rule, CMS announced that the agency plans to reduce the 2016 EHR reporting period from a full calendar year to 90 days.

REFORMING THE REFORM

While the Affordable Care Act (ACA) is the law of the land, the AANS has not ceased in advocating for changes to this landmark health care reform law. A top priority remains abolishing the Independent Payment Advisory Board (IPAB). The IPAB is a 15-member, unelected and unaccountable government board whose principal responsibility is to cut Medicare. In leading the Physician IPAB Repeal Coalition, the AANS was instrumental in getting funding for IPAB eliminated for fiscal year 2016 as part of the $1.15 trillion comprehensive spending and tax extenders package (Public Law 114-113).

America has a long tradition of excellence and innovation in patient care, and neurosurgeons have been on the cutting edge of these advancements. To ensure continued forward progress with medical innovations, the AANS joined the fight to repeal the 2.3 percent excise tax levied on the sales of medical devices. Due in part to the advocacy efforts of the AANS, the $1.15 trillion comprehensive spending and tax extenders package (Public Law 114-113) included a two-year suspension of the 2.3 percent excise tax.
GRADUATE MEDICAL EDUCATION

An appropriate supply of well-educated and trained physicians is an essential element to ensure access to quality health care services for all Americans. And while medical schools in the U.S. have increased their enrollments and additional medical and osteopathic schools have been established, the number of Medicare-funded resident positions has been capped by law at 1,996 levels. Through the continued advocacy of the AANS, policymakers are beginning to understand that there are significant shortages of physicians in both primary and specialty care. Working with the Association of American Medical Colleges (AAMC), the Alliance of Specialty Medicine and others, the AANS successfully advocated for the introduction of legislation to provide additional Medicare funding for graduate medical education (GME), including the introduction of the Resident Physician Shortage Reduction Act (H.R. 2124/S. 1148) and the Training Tomorrow’s Doctors Today Act (H.R. 4774). Momentum continues to grow for both bills, which would expand Medicare funding for an additional 15,000 slots over a five-year period.

Beyond the legislative efforts, Neurosurgery Blog hosted GME awareness month. To maximize attention on GME and physician workforce issues, the AANS planned this initiative around Match Day, which occurred on March 18, 2016. Dubbing March as “GME Month,” organized neurosurgery launched the hashtag #gmemonth on Twitter. Neurosurgery Blog and other communication outlets focused on GME-related topics throughout the month, with multiple guest blog posts from Atul Grover, MD, executive vice president of the AAMC, and Rep. Joe Crowley (D-N.Y.), vice chair of the House Democratic Caucus and a member of the powerful Ways and Means Committee.
NEUROSURGERY ADVOCATES FOR TRAUMA CARE

Working to improve the nation’s trauma and emergency care systems, the AANS participated in several Congressional briefings. Geoffrey T. Manley, MD, PhD, FAANS, past chair of the AANS/CNS Section on Neurotrauma and Critical Care, served as a lead witness at the U.S. House Energy and Commerce Committee’s initial roundtable discussion reviewing the causes, effects and treatments for concussions. The meeting brought together experts from the medical, military, athletic and research communities to increase collaboration and expand the body of knowledge to help improve the diagnosis and treatments of concussions. Following this hearing, P. David Adelson, MD, FAANS, represented the AANS and CNS in a Congressional briefing convened to highlight the challenges facing pediatric trauma patients and the need to find bipartisan solutions to ensure adequate trauma care for children. As a result of this hearing, several prominent members of Congress established the Pediatric Trauma Caucus.

MEDICAL LIABILITY REFORM

As the specialty facing the highest premiums, most lawsuits and largest average indemnity payments, the AANS recognizes the need for improving the medical liability climate for neurosurgeons. While federal medical liability reform legislation remains elusive, the Washington Committee continues to lead efforts to pass reform. Serving as vice chair of the Health Coalition on Liability and Access, and in collaboration with the trauma community and others, Washington Office staff are working to secure of national medical liability reform. Through these efforts, organized neurosurgery’s priority legislation, the Help Efficient, Accessible, Low-Cost, Timely Healthcare (HEALTH) Act (H.R. 4771) was reintroduced. Estimated to reduce spending by $50 billion over the next decade, the HEALTH Act is modeled after California’s Medical Injury Compensation Reform Act (MICRA) and includes a $250,000 cap on non-economic damages.

Additional bills have been introduced due to organized neurosurgery advocacy. The Health Care Safety Net Enhancement Act of 2015 (H.R. 836/S. 884) would provide crucial medical liability protections to neurosurgeons providing EMTALA-related care and the Saving Lives, Savings Cost Act (H.R. 2603/S. 1475) would provide certain protections for physicians following clinical practice guidelines. Finally, the Sports Medicine Licensure Clarity Act (H.R. 921/S. 689) would provide protections for certain sports medicine professions who provide certain medical services in a secondary state.

NEUROSURGERYPAC/GRASSROOTS

Organized neurosurgery has established a tried-and-true formula for working inside the Washington Beltway to have an impact on health policy. In 2015, the AANS actively engaged its members in the political process through grassroots activities, calls to action and participation in NeurosurgeryPAC. Whether in person or through the AANS/CNS Legislative Action Center, neurosurgeons from all across the country communicated with members of Congress on such topics as medical liability reform, Medicare payment, GME and trauma care. Additionally, neurosurgeons attended advocacy conferences like the Alliance of Specialty Medicine Annual Legislative Conference. Lastly, hundreds of
neurosurgeons donated to NeurosurgeryPAC, thus far bringing total contributions to $175,825 for the 2016 calendar year. More information about NeurosurgeryPAC, including the complete current list of donors, candidates receiving NeurosurgeryPAC support and your PAC in action, is available on the AANS website.

COMMUNICATIONS OUTREACH
In addition to its direct lobbying and grassroots advocacy in Washington, D.C., the Washington Committee garners support for neurosurgery’s health policy positions by carrying out a nationwide earned media campaign and by providing the media with timely information that can be used for their reporting. The Washington Office’s traditional media/communication efforts include Op-Eds, letters to the editor, radio “tours” and desk-side briefings with reporters from the Wall Street Journal, Washington Post, CBS, NBC, Politico and others. Since December 2012, the Washington Office has generated 126 traditional media hits reaching a circulation/audience of 9 million. In addition to traditional media, the digital media platforms continue to see a significant expansion and have garnered over 170 million individual impressions. Furthermore, these media platforms have amassed a subscription audience of 65,000. By using these social media platforms, organized neurosurgery has continued to reach opinion influencers in the media, on Capitol Hill and in various health policy circles that would not have been easily achieved through more traditional means. These communication tools include:

- **Neurosurgery Blog: More Than Brain Surgery**, a web-based opinion and perspective column through which insights and perspective on contemporary health issues are offered as they relate to organized neurosurgery.

- [@Neurosurgery Twitter feed](https://twitter.com) is used to gain greater visibility for neurosurgery’s advocacy efforts, and followers are made up primarily of media, congressional and health-policy communities. The Twitter feed focuses primarily on health-policy updates and provides links to positive stories about neurosurgery.

- The [YouTube channel](https://www.youtube.com) features clever animations designed to engage the public in a fun, visually appealing manner while providing clear-cut, high-level facts centered on neurosurgery’s top legislative issues.

- Facebook, LinkedIn, Tumblr and Google+ sites help drive health-policy influencers to information on [Neurosurgery Blog](https://neurosurgery.org) and the Twitter feed, while also spotlighting AANS news-making successes and initiatives.

We invite you to visit the blog and subscribe to it, as well as read our monthly e-newsletter, [Neurosurgeons Taking Action](https://neurosurgery.org), and connect with us on our various social media platforms to keep up with the many health-policy activities happening in the nation’s capital and beyond the Beltway.

CONTACT
For more information about AANS advocacy efforts, contact Katie O. Orrico, JD, director of the Washington Office, at [korrico@neurosurgery.org](mailto:korrico@neurosurgery.org).
The Journal of Neurosurgery Publishing Group (JNSPG) continues to publish 50 issues per year: 36 print, 12 electronic and two video supplements. In 2015, we received over 5,000 submissions for all four journals and the video supplements.

As associate editor, Douglas S. Kondziolka, MD, FAANS, has assisted with manuscript triage, resulting in over 900 manuscripts that were reviewed by us without full Editorial Board review. This represented about 20 percent of all submissions to the print journals that bypassed the Editorial Board. The response from authors has been quite positive.

Martin Weiss, MD, FAANS(L), has done an outstanding job during his 20-year term as editor-in-chief of Neurosurgical Focus. I cannot thank him enough for what he has accomplished in bringing Focus to the level it has reached. E. Sander Connolly Jr., MD, FAANS, continues to oversee the Video Supplements and has done a great job soliciting guest reviewers and interesting topics.

I would like to recognize these outstanding chairmen who have dedicated many hours to reviewing manuscripts and have provided our authors with timely, thorough and insightful reviews:

- E. Sander Connolly, Jr., MD, FAANS; and Oren Sagher, MD, FAANS (JNS)
- Paul M. Arnold, MD, FAANS; Charles G. Fisher, MD; and Mark N. Hadley, MD, FAANS, [2nd term] (JNS: Spine)
- Mark M. Souweidane, MD, FAANS (JNS: Pediatrics)

In my third year as editor-in-chief of the JNSPG, these are some of our accomplishments:

- Initiated the linkage of the Journal to The Rhoton Collection®
- Established Broca’s Area, a site for opinion pieces in the Journal
- Developed the “level of evidence” commentary after select articles, in conjunction with Michael Glantz, Penn State University, Hershey, Penn.
- Appointment of Neurosurgical Focus new editor-in-chief, William T. Couldwell, MD, PhD, FAANS, and the new associate editors, Jason P. Sheehan, MD, PhD, FAANS; and Aaron A. Cohen-Gadol, MD, FAANS
- Formal linkage of the Journal with Dr. Cohen-Gadol’s Neurosurgical Operative Atlas project
- Creation of numerous icons to steer readers’ attention towards special areas of the Journal (e.g., levels of evidence, letters to the editor and video content)

James T. Rutka, MD, PhD
Editor-in-chief
CHARTING A PATH: Exploring the Past, Present and Future of Brain Mapping

In the growing field of brain mapping, advances are made each year in surgical centers around the world. As these pre- and intraoperative brain mapping techniques evolve, practitioners have begun searching for a forum to share their unique experiences, cases and techniques with other leading neurosurgeons.

“In meeting with neurosurgeons around the world, it became obvious that we are all doing things a bit differently within the realm of brain mapping,” said course co-director Mitchel S. Berger, MD, FAANS, on his inspiration for the course. “I knew that it would be very powerful to come together in one location and share techniques, giving all participants a better sense of the field.”

The AANS, in collaboration with the NREF, hosted the First International Brain Mapping course, April 28-29, 2016, in Chicago.

Over these two days, course co-directors Dr. Berger; Richard W. Byrne, MD, FAANS; and Hugues Duffau, MD, led a diverse group of faculty hailing from brain mapping centers across four continents.

This faculty presented the current understanding of functional anatomy, reviewed the history of functional brain mapping and explored potential advances in technique and applications. Nearly a dozen faculty members shared algorithms, procedures and approaches employed at their individual practices. “The presenters really did justice to the topic, especially with regards to clear description of each of the mapping techniques with their various applications,” commented course attendee, Chiazor Onyia, MD.

Due to overwhelming response, the course was filled to capacity weeks in advance. Also, the recorded lectures from the course are now available online - allowing an even greater international audience to share in the knowledge from this inaugural course.

AANS EDUCATION BY THE NUMBERS

10 live courses
6 resident/fellow education courses
16 jointly-provided CME programs
3 SNS/AANS junior resident courses: Introduction to Operating Room and Leadership

More than 100 total educational CME activities in the 2016 fiscal year, including online courses, webinars and enduring materials
EXPANDING THE RESIDENCY EXPERIENCE

Neurosurgery is recognized as having some of the most challenging, lengthy and comprehensive residency training of any specialty. But, even with this rigorous training, the AANS and the NREF continue to lead the way in expanding and improving the traditional educational experience by offering a series of advanced resident and fellow courses on various topic areas not always covered within residency. In the 2016 fiscal year, the AANS and NREF offered this training to 124 neurosurgical residents and fellows at no cost to the trainees or their programs.

Many thanks to the faculty and supporters who made these courses possible.

FELLOWS COURSE IN NEUROENDOVASCULAR TECHNIQUES
In Collaboration with the Society of NeuroInterventional Surgery (SNIS) and the Society of Vascular and Interventional Neurology (SVIN)
Oct. 16-18, 2015 | Memphis, Tenn.
Course Co-directors: Adam S. Arthur, MD, MPH, FAANS; Erol Veznedaroglu, MD, FAANS; and Alejandro Berenstein, MD
Industry Supporters: Codman; MicroVention; Stryker Neuro; Medtronic; Penumbra; Siemens; and Methodist Hospital, Memphis
Number of Fellows Educated: 21
FUNDAMENTALS IN SPINAL SURGERY FOR RESIDENTS
Oct. 22-24, 2015 | Houston
Course Co-directors: R. Patrick Jacob, MD, FAANS; and Praveen V. Mummaneni, MD, FAANS
Industry Supporters: DePuy Synthes Spine; Medtronic; NuVasive; Zimmer Biomet; K2M; Orthofix; Globus Medical; Misonix; Stryker Spine and Siemens
Number of Residents Educated: 39

ENDOVASCULAR AND VASCULAR TECHNIQUES FOR RESIDENTS
Nov. 6-8, 2015 | Memphis, Tenn.
Course Co-directors: Adam S. Arthur, MD, MPH, FAANS; Michael T. Lawton, MD, FAANS; and Erol Veznedaroglu, MD, FAANS
Industry Supporters: MicroVention; Medtronic; Stryker Neuro; Codman Neuro; Leica Microsystems; Carl Zeiss Meditec, Inc.; Penumbra; Aesculap, Inc. USA; Zimmer Biomet; Mizuho America, Inc.; Surgical Solutions; and Methodist Hospital, Memphis
Number of Residents Educated: 24

STEREOTACTIC AND FUNCTIONAL HANDS-ON NEUROSURGERY WORKSHOP FOR RESIDENTS, FELLOWS AND ATTENDINGS
Course Co-director: Aviva Abosch, MD, PhD, FAANS
Industry Supporters: Alpha Omega; Brainlab; Cyberonics; FHC; Integra; Medtech (ROSA); Medtronic/Medtronic Advanced Energy; Monteris Medical; MRI Interventions; NeuroPace; St. Jude Medical; Nexstim; Elekta; and Cosman Medical
Number of Residents and Fellows Educated: 11 (31 total attendees)

PERIPHERAL NERVE FOR RESIDENTS
April 1, 2016 | Baltimore
Course Director: Allan J. Belzberg, MD, FAANS
Industry Supporters: Integra LifeSciences; AxoGen; and Progressive Wellness
Number of Residents Educated: 29

SPINAL DEFORMITY FOR RESIDENTS
April 2-3, 2016 | Baltimore
Course Co-directors: Robert F. Heary, MD, FAANS; and Justin S. Smith, MD, FAANS
Industry Supporters: DePuySynthes Spine; K2M; Medtronic; and Globus
Number of Residents Educated: 28
CODING CLARITY SOUGHT AND SHARED:
Co-director of AANS Coding Course Brings Health to Practices as Well as Patients

John Kevin Ratliff, MD, FAANS

“Coming out of training into my own practice I saw, quite clearly, that I needed some extra education to understand how to code. Neurosurgeons must be able to accurately reflect the procedures they do with appropriate codes, and while this information is vitally important for maintaining the financial health of a practice, it is not the kind of thing that is covered in routine residency training. Coding becomes one of those things left to the ‘learn by doing’ method.

“Something that is both so vital and so precise seemed an odd thing to consign to learning on the fly. The exposure I got during my own residency training was simply not enough. I needed more; I needed lots more. I think that most practicing neurosurgeons feel the same way about many of the fundamental business aspects of their practice.

“I felt that proficient coding was sort of a mystery until I took an AANS coding course and was provided a foundation in that essential aspect of a successful practice: learning how to code cases correctly. I found coding really interesting, and I realized that my affinity for coding provided me with a great opportunity to give something back to other practicing neurosurgeons, so I volunteered to help with further development of the coding courses.”

Dr. Ratliff is co-director for the Managing Coding & Reimbursement Challenges in Neurosurgery course alongside Luis Manuel Tumialán, MD, FAANS. “It is great for us to be able to train physicians and help them avoid some of the errors that we may have made early on in our careers. A good working knowledge of procedural coding can make a significant difference to the financial health and well-being of a neurosurgeon and his or her practice.”
Concurrent with my involvement in the coding courses, I became involved with the Resource Based Relative Value Scale Update (RUC) Committee that is run by the American Medical Association (AMA) and handles assigning values to procedures. This information helps Medicare determine what a given procedure is “worth” compared to another procedure, which directly impacts how physicians are paid. The RUC gives recommendations to the Centers for Medicare & Medicaid Services (CMS), a branch of the government that creates assignment of value within the Medicare fee schedule.

That is the second leg of my three-legged chair. The third is the Neurosurgical Quality Council (NQC). As I was getting involved in the RUC and learning more about that process, it became apparent that CMS was attaching greater value to quality reporting and was moving toward making quality reporting a significant part of physician reimbursement. I saw this all coming together and decided I should really learn coding and how the RUC functions. I also had to learn how this quality stuff works because all of these measures are going to come together and, effectively, determine how physicians are reimbursed.
“There is a lot of opportunity for doing good with quality reporting. But, unfortunately, the focus of a lot of our reporting at present is just noting measures that have little or no impact on how well patients do after a surgery or after a treatment. We are trying to help improve this system and to make quality reporting relevant to the quality of care we are providing to patients; we want it to mean something.

“For instance, any physician you ask will tell you that electronic health records (EHRs) have a tremendous opportunity for improving patient care. But, the present EHR systems have tremendous room for improvement and the meaningful use (MU) reporting systems we have today are deeply flawed. Part of my role in the NQC is to advocate for practicing neurosurgeons by making those points to CMS and by bringing these issues up when there is time for comment. This work is led by the Washington Committee and is essential to help ensure that neurosurgical voices are reflected in policy decisions on quality.

“For me, it isn’t really about how much physicians get paid. I am focused on maintaining patient access to neurosurgical care, which means I have to be concerned with maintaining the financial integrity of practices. Similarly, I want neurosurgeons to have a choice in the type of practice they pursue. Private practice, hospital employment, academics: all of these practice options should be available to graduating residents. Neurosurgeons have to be able to pay their office staff, their nurses, their liability insurance and their general bills while maintaining the financial integrity of their practice. If they are not able to cover their overhead, then they cannot stay in practice. If neurosurgeons don’t practice, how will their patients be served?”
This was an extraordinary year to serve as chair of the Neurosurgery Research & Education Foundation (NREF), and it was an honor to do so. The generosity of neurosurgeons, neurosurgical societies, institutions, corporations and the public have enabled the NREF to ensure the future of our specialty. This support helps the NREF accomplish its mission of providing a private, non-governmental source of funding for research training in the neurosciences.

During this year’s research/fellowship award cycle — for the first time — AANS/CNS Joint Sections provided reviewers the opportunity to score the applications for research grants and fellowships funded by the NREF. Eight $40,000 grants were awarded using funding provided by the American Academy of Neurological Surgery, the Bagan Family Foundation and Medtronic, as well as the Cerebrovascular, Tumor, Pediatric and Pain Sections. Partnering with the private foundation focused on brain tumor research, B*CURED, enabled a ninth research grant to be funded this year, and additional private foundations are being considered for funding partnerships.

The creation of the Honor Your Mentor funds has provided opportunities for donors to support the individual purpose of each fund, as developed by the fund originator. As section support of the funds increases through pledges and donations by individuals, corporations and others, we have seen this peer-to-peer program grow to 24 funds since its inception in 2014. Our first corporate sponsor for an Honor Your Mentor fund, Brainlab, committed to a multi-year pledge: the first installment of $50,000 was received this year to support the Andrew Parsa Fund. We look forward to seeing more industry support in the coming years.

We recognize the leadership role taken by the AANS/CNS Section on Disorders of the Spine and Peripheral Nerve for its pledge of $100,000 for the upcoming fiscal year for five NREF Honor Your Mentor funds and the generosity of Dr. Arvind Ahuja’s pledge of $100,000 for the next five years, providing funds for a Challenge Grant to the AANS/CNS Joint Cerebrovascular [CV] Section for CV research grants.
Advancing the specialty is directly related to the contributions of the individuals, institutions and organizations that share our vision to further education and research for the neurosurgical specialty.

The Development Committee of the NREF (comprised of members of each section, the NREF and AANS Boards of Directors and the Young Neurosurgeons Committee (YNC)) considered the many ways sections, individual neurosurgeons, private and academic group practices, corporate sponsors, state and regional societies and public donors can identify, cultivate and steward financial support with individuals, groups and corporations to support the foundation.

The NREF is closely aligned with NeuroPoint Alliance (NPA) and has provided funding for new and existing neurosurgical treatments in order to identify links between best practices and improved outcomes in patient care.

For the past five-and-a-half years, we have worked closely with Albert L. Rhoton Jr., MD, FAANS(L), to preserve his legacy in the best possible way. The Rhoton Collection® was established to curate his material and make it available for free throughout the world. The implications of this work have already extended far beyond the original vision; for example, the Journal of Neurosurgery has introduced a new feature that links select articles on its website directly to The Rhoton Collection. With the loss of Dr. Rhoton in February, it is more important than ever to continue his legacy of education by providing good stewardship to fund the extraordinary photos and lectures that are part of the Rhoton Collection and supplement with new video content each month. Please consider a contribution to the NREF Rhoton Fund to support this material, neuroanatomical fellowships for medical students and anatomical research, as well as his memory.

Advancing the specialty is directly related to the contributions of the individuals, institutions and organizations that share our vision to further education and research for the neurosurgical specialty. As always, we greatly appreciate the generosity of your financial support.

Jon H. Robertson, MD, FAANS
NREF Chair
The late Janusz Subczynski, MD, FAANS(L), once observed, “The younger generations in this country are growing in an entirely different environment than I did ... I went through the horror stories. I can appreciate the danger that exists in the world.”

His comments were not hyperbole. Dr. Subczynski survived both the German and the Russian occupation of his homeland, Poland. “He had a very good childhood, until one night he found himself on the road escaping from Warsaw with his parents, under bomb and machine gun fire.”

While living under occupied control, he managed to complete medical school, receive degrees in philosophy and psychology and become a surgeon, finishing his neurosurgical training here in the U.S. From within the U.S., he became deeply involved in POMOST, a Polish-American organization that broadcast information about conditions in Poland, efforts that earned organization leaders, including Subczynski, a death sentence in that country. However, those same political efforts brought him within Ronald Reagan’s sphere. During the Reagan White House years, Subczynski was often in attendance at presidential social events: his dancing skills made him a favorite of Nancy Reagan.

After his retirement from neurosurgery, he became an author, writing two autobiographical books, and “was also a philanthropist who funded a vocational training center in Santa Cruz in Guatemala... he lived modestly and preferred to spend the cash on some lofty goals,” according to his obituary. Subczynski died Jan. 6, 2014.

Recently, the NREF was notified that it would be a beneficiary of Subczynski’s posthumous philanthropy, as he left NREF a sizeable bequest in his will. While the details are still being finalized, his gift is likely to be one of the largest individual donations ever received by the NREF. His interest and activism in supporting the younger generations and education will continue on, serving as a fitting legacy for Dr. Subczynski and providing an appropriate epilogue to his story.

“Beyond the fact that this was a truly exceptional man, what I hope people will take from this story is how Dr. Subczynski planned ahead and secured his legacy. We have many different ways to support the NREF’s education and research programs, including trusts, direct gifts from IRAs, charitable gift annuities and book/product royalties. Please consider continuing to support the NREF’s efforts, even after you are no longer here,” said Jon H. Robertson, MD, FAANS, chair, NREF.

The Board of Directors is grateful to Dr. Subczynski for the generosity of his bequest to the NREF. For more information on the variety of Charitable Planning Strategies, including planned gifts, bequests, stock transfers, memorials, royalties and more, contact the NREF.
NREF: BROADENING THE SCOPE OF EDUCATION TO NEUROSURGEONS

Educating neurosurgeons by offering training to neurosurgical residents, fellows and practicing surgeons is the mission of the NREF. The organization actively supports state-of-the-art, cutting-edge educational courses for those in all stages of their careers.

Securing over $1.2 million last year from corporate supporters provided funding for preeminent training courses. In addition, the NREF was pleased to offer the first webinar on the topic of 5-ALA in Fluorescence in Fall 2015. The extraordinary success of this webinar provided the impetus to plan for more web-based training in the near future.

The first *International Brain Mapping* course was held in Spring 2016 and will be offered again, as registration almost immediately sold out. Planning has begun for a first-time symposium specifically designed for mid-career neurosurgeons and several international courses are in the early stages of discussion.

In addition, over $1 million is being provided by the NREF to fund research grants and Young Clinician Investigator Fellowships annually to help launch the careers of medical students and young surgeons.

Since 2006, the generous contributions of industry partners have allowed more than 1,600 residents, fellows and practicing surgeons to learn critical surgical skills, quantitative analysis and career planning from expert faculty at leading academic institutions across the country. Participants in these courses are nominated by their institutions.

### 2015-2016 NREF COURSES

- 16th Brazilian Congress of Spinal Surgery
- 5-ALA in Fluorescence Webinar
- CCNS-AANS/NREF Clinical Course in Spinal Surgery in Qingdao, China
- Endovascular and Vascular Techniques for Senior Residents
- Fellows Course in Endovascular Techniques (in collaboration with SNIS and SVIN)
- *First International Brain Mapping* course
- Fundamentals in Spinal Surgery for Residents
- Peripheral Nerve Course for Residents
- Skull Base for Senior Residents Course
- Spinal Deformity Course for Residents
- Stereotactic and Functional Neurosurgery Hands-on Workshop
Since 2010, the NREF has supported 77 post-residency clinical fellowships (PRCF) at more than 25 neurosurgery training programs in North America.

Funding for post-residency fellowships is made possible by industry supporters. Applications are accepted in areas such as spine, endovascular, pediatric, stereotactic, tumor neurosurgery and others. PRCF awardees are independently chosen by an unbiased committee of neurosurgeons, and fellowships range from up to $75,000 for spine fellowships to $50,000 for other subspecialties.

The NREF gratefully recognizes corporate support of the 2015-2016 PRCF program from the DePuy Synthes Companies of Johnson & Johnson and Medtronic, Inc.

The following programs were awarded fellowship grants for the 2015-2016 academic year:

- Brigham and Women’s Hospital
- Cedars Sinai Medical Center
- Indiana University
- The Medical College of Wisconsin
- Northwestern University
- Stanford University
- Thomas Jefferson University
- University of California at San Francisco
- University of Miami/Jackson Memorial Hospital
- University of Utah
COMMITTED TO OUR MISSION:
Providing Research Grants and Young Clinician Investigator Awards

The mission of the NREF is to enhance lives by advancing neurosurgical care, and one pathway to achieving this mission is to fund research for both new and current neurosurgical treatments. Research fellowships and Young Clinician Investigator Awards are funded by the NREF for studies in basic, translational and patient clinical research. The ongoing goal is to fund research that can help to identify links between best practices and improved outcomes in patient care.

Research fellowships for residents provide funding for neurosurgeons who are preparing for academic careers as clinician investigators and who have been accepted into, or who are currently in, approved neurosurgical residency training programs in North America. Young Clinician Investigator Awards support junior faculty who are pursuing careers as clinical investigators and are neurosurgeons who are no more than two years from the end of their clinical training at North American teaching institutions.

Supported by donations from the public and neurosurgeons with a keen interest in giving back to their chosen profession, as well as corporate and allied neurosurgical groups, the funded research has wide-reaching ramifications in helping those suffering from epilepsy, stroke, brain tumors, spinal disorders, sports-related head injuries, lower back pain, Parkinson’s disease and many others. Since 1980, over $8 million in grant funding has been awarded to over 200 residents and young clinician investigators at 72 academic institutions.

The NREF would like to thank the following organizations that helped support NREF Research Grants and Young Clinician Investigator Awards in fiscal year 2016:

- American Academy of Neurological Surgery
- AANS/CNS Joint Section on Pain
- AANS/CNS Section on Pediatric Neurological Surgery
- AANS/CNS Section on Tumors
- Bagan Family Foundation
- Medtronic, Inc.
The 2015-2016 Research Grant and Young Clinician Investigator Award ($40,000 for one year) recipients are:

Casey H. Halpern, MD  
*NREF/Medtronic Research Fellow*  
Stanford University  
**Project Title:** Responsive neurostimulation for obesity: evidence from a mouse model of diet-induced obesity

Ammar Hawasli, MD  
*NREF Research Fellow*  
Washington University  
**Project Title:** Resting-state brain functional magnetic resonance imaging to predict functional recovery following spinal cord injury

Betty Y.S. Kim, MD  
*NREF Research Fellow*  
Mayo Clinic College of Medicine  
**Project Title:** Normalizing tumor vasculature to promote targeted nanomedicine delivery and therapy of glioblastoma multiforme

Phillipe Magown, MD  
*NREF/Academy of Neurological Surgery*  
Edward H. Oldfield, MD, Research Award Hotchkiss Brain Institute, University of Calgary  
**Project Title:** Network and neuronal activity evoked by DBS of the ventro-medial prefrontal cortex: a therapeutic model for treatment refractory depression.

Peter Morgenstern, MD  
*NREF Research Fellow*  
Memorial Sloan Kettering Cancer Center  
**Project Title:** The role of menin and a novel approach for targeted therapy in Diffuse Intrinsic Pontine Glioma

Ziev Moses, MD  
*NREF Research Fellow*  
Massachusetts General Hospital  
**Project Title:** Developing a novel cortical-spinal neural prosthesis for reconstituting volitional movement of a paralyzed limb

Ammar Saratsis, MD  
*NREF/Bagan Family Foundation*  
Young Clinician Investigator Award  
Northwestern University Feinberg School of Medicine  
**Project Title:** Tenascin-C as a Therapeutic Target in Pediatric Brainstem Glioma (AGFs) in the development of Medulloblastoma

Gentian Toshkezi, MD  
*NREF Research Fellow*  
The Research Foundation for the State University of New York, Upstate Medical University  
**Project Title:** The therapeutic role of hematopoietic growth factors in the subacute phase of traumatic brain injury.

Andrew Venteicher, MD  
*NREF Research Fellow*  
Massachusetts General Hospital  
**Project Title:** Identifying human glioma propagating cells and their vulnerabilities using single cell transcriptome sequencing technology

Pascal Zinn, MD  
*NREF Research Fellow*  
University of Texas, MD Anderson Cancer Center  
**Project Title:** Targeting Radiogenomics-derived core Periostin Correlated Gene Networks in Glioblastoma
MEDICAL STUDENT SUMMER RESEARCH FELLOWSHIP PROGRAM

ENCOURAGING MEDICAL STUDENTS TO EXPLORE NEUROSURGERY

In the hope of fueling interest in neurosurgery for top medical students, the NREF has offered up to 20 Medical Student Summer Research Fellowships for the past nine years to first and second year medical students.

Hoping to encourage the brightest and most dedicated students to select neurosurgery, the fellowship is open to medical students in the U.S. and Canada who have completed one or two years of medical school and wish to spend a summer working in a neurosurgical laboratory, mentored by an AANS-member neurosurgical investigator sponsor.

With generous support from royalties provided by Aaron Cohen-Gadol, MD, FAANS, a total of 20 awards were provided this summer, each totaling $2,500. “These students are the key to the future of neurosurgery, and I look forward to many years of working with the NREF to support their mission to enhance and confirm the critical role that neurosurgeons play in improving lives,” said Dr. Cohen-Gadol.

Neurosurgeons interested in providing funding for any of the NREF grants and fellowships through royalties, planned gifts, stock transfers, donor-advised funds or other ways, can do so through the NREF website or by contacting the NREF at 847.378.0500.
2016 AARON COHEN-GADOL MEDICAL STUDENT SUMMER RESEARCH FELLOWSHIP Awardees

Patrick M. Flanigan
University of California San Francisco

Samuel Tomlinson
Children’s Hospital of Philadelphia

Rachel Kalani Greene
Washington University School of Medicine

Natalie Elizabeth Griffin
Washington University School of Medicine

Alessandra Hirsch
Columbia University Medical Center

Anadeet Singh Khaera
New York University

Daniel Oyon
Northwestern University Feinberg School of Medicine

Weining Yang
Toronto Western Hospital

Christopher Marnell
Weill Cornell Medical College-New York Presbyterian Hospital

Luke Alan Mugge
The Ohio State University

2016 MEDICAL STUDENT SUMMER RESEARCH FELLOWSHIP Awardees

Claire Collison
Albany Medical Center

Joseph Scott Hudson
University of Iowa

Prateek Agarwal
University of Pennsylvania

Krish Suresh
Northwestern University

William Roberson Johnston
Washington University St. Louis Mo.

Vaidehi Mahadev
Cleveland Clinic Foundation

Ankush Chandra
University of California San Francisco

David J. Cote
Brigham and Women’s Hospital

Michael Mathison
Washington University School of Medicine

Erin Elizabeth Good
GW School of Medicine and Health Scienc

BEST 2015 MSSFABSTRACT PRESENTED AT 2016 AANS ANNUAL SCIENTIFIC MEETING

Brandon Lucke-Wold
MD Candidate, Class of 2017
West Virginia University School of Medicine

Project Title: Targeting Tauopathy by Limiting Neurotrauma Related Axonal Damage
NEW TIMELINE FOR PRESTIGIOUS VAN WAGENEN FELLOWSHIP

Awarded annually since 1968, the William P. Van Wagenen Fellowship is offered for post-residency study in a foreign country for a period of 12 months. The Fellowship was established by the estate of Dr. Van Wagenen, who was one of the founders and also the first President of the Harvey Cushing Society, now the AANS.

In considering the contribution he might make to neurosurgery, Dr. Van Wagenen chose to provide support scientifically enriching foreign travel for a post-neurosurgical resident, prior to him or her beginning an academic career in neurological surgery. The Van Wagenen Fellowship was designed to provide freedom in scientific development without the restrictive limitations imposed by many research grants and fellowships.

To allow more flexibility and planning time for both residents and their institutions, the Van Wagenen Fellowship application deadlines have been changed. Applications for both the 2017-2018 academic year and the 2018-2019 academic year are being accepted at the NREF website. Candidacy is open to all senior neurosurgical residents (PGY6 and PGY7) in approved neurosurgery residency programs and whose intent is to pursue an academic career in neurological surgery.

The William P. Van Wagenen Fellowship includes the following:

- $120,000 stipend for living and travel expenses to a foreign country for a period of 12 months;
- $6,000 family travel and living allowance if a spouse and/or children will accompany the Fellow;
- $15,000 of research support to the university, hospital or laboratory sponsoring the Fellow; and
- $5,000 for medical insurance, if needed.
An award such as the Van Wagenen Fellowship can have a tremendous impact on a neurosurgeon’s career. The 2016 recipient, Lisa Feldman, MD, PhD, a sixth-year neurosurgery resident at Virginia Commonwealth University Medical Center, traveled to New Zealand and worked alongside physicians, scientists and researchers from the University of Auckland and Malaghan Institute of Medical Research in Wellington.

During her Van Wagenen year in New Zealand, Dr. Feldman studied perfluorocarbons as a new oxygen delivery therapy in hope of reversing the death of healthy cells that result from radiation treatment of brain cancers. In an interview with VCU News, Dr. Feldman said, “Our preliminary findings are very exciting. We are discovering that nanoparticles do improve tumor sensitivity to radiation.” The local government in New Zealand and the University of Otago are supporting ongoing research, and Dr. Feldman continues to collaborate with her colleagues there in an effort to replicate their findings. The next step would be clinical trials.

A donation to the Van Wagenen fund through the NREF website will help promising residents pursue this amazing professional opportunity, and ultimately, your support will have a major impact on neurosurgical patients, educators, researchers and clinicians.
PARTNERSHIPS

NEW PARTNERSHIP WITH B*CURED FUNDS BRAIN CANCER RESEARCH

The NREF Board of Directors announced a partnership this year with B*CURED, a non-profit organization based in Greenwich, Conn. B*CURED was founded in 2008 by Melissa Salamé and Debbie Needle after each lost a parent to brain cancer. The organization’s primary goal is to help find a cure for brain cancer through research grants.

To date, B*CURED has awarded 14 grants to investigators searching for a cure for brain cancer at nationally-ranked universities and hospitals and has raised over $1,500,000 for brain cancer research.

“The missions of B*CURED and the NREF are aligned with respect to funding brain cancer research, and the NREF is uniquely positioned to enhance B*CURED’s research funding efforts by expanding its access to high-quality research proposals,” commented Jon H. Robertson, MD, FAANS, NREF chair. The NREF receives, on average, 70-80 requests for research grants annually related to brain tumors and brain cancer.

The organizations jointly offered a B*CURED-NREF Research Grant of $50,000, which was funded by B*CURED. The inaugural recipient of the research grant was Jamie Purzner, MD, who will be conducting research on medulloblastoma (MB), the most common malignant pediatric brain tumor. Dr. Purzner is a resident in the University of Toronto training program for neurosurgery and pursuing a PhD in developmental biology at Stanford University.
CAMPAIGN FUNDS COLLABORATION BETWEEN NPA &
THE INSTITUTE FOR HEALTHCARE IMPROVEMENT (IHI)

This year, the NREF launched a campaign to provide ongoing support for the NPA joint study with the Institute for Healthcare Improvement (IHI). The one-year cooperative project will develop, test and implement an approach to improving outcomes for spine surgery patients. “The end product will be a ‘tool kit’ for participating surgeons and hospitals around the nation to improve health outcomes following elective spine surgery,” said Anthony L. Asher, MD, FAANS, director of the Quality Outcomes Database (QOD).

The NREF facilitates research funding opportunities as a means to make advances in the diagnosis and treatment of neurological conditions such as brain tumors, strokes and spinal disorders. “We are delighted to support this NPA initiative with IHI. The results of this research will ultimately give neurosurgeons at hospitals around the country innovative, state-of-the-art techniques to manage spine care outcomes,” added Dr. Robertson. “These additional resources will enhance our ability to help thousands of patients with debilitating neurosurgical conditions well into the future.”

“QOD is distinguished by its emphasis on patient-reported outcomes measures. We have demonstrated that we can collect extensive, audited data. Now we need to prove that we can use this data to improve the quality of neurosurgical care. I believe that the NPA-IHI project will do this,” commented Robert E. Harbaugh, MD, FAANS, NPA chair. “NPA is very grateful to the NREF for its continued support of this ground-breaking initiative.”

Support for this joint study or other outcome registries can be provided by visiting the NREF website and selecting QOD or Outcome Fund options for the subspecialty area of your choice. Your contribution will provide funding for data collection, analysis and reporting on clinical data from neurosurgical practices around the country.
PINNACLE PARTNERS: COMMITTED TO SUPPORTING NEUROSURGERY

The generous support of our corporate partners through the Pinnacle Partners in Neurosurgery program has provided funding for research, education and training in neurosurgery across all subspecialties. Residents have learned from world-renowned neurosurgeons about a variety of topics in training made possible only because of corporate supporters who have – decidedly – advanced the specialty of neurosurgery as a whole.

The NREF gratefully acknowledges the continued support from the following companies for their multi-year contributions as Pinnacle Partners in Neurosurgery:

- Brainlab, Inc.
- Carl Zeiss Meditec, Inc.
- DePuy Synthes Companies of Johnson & Johnson
- Elekta
- Globus Medical, Inc.
- Integra Life
- Leica Microsystems
- Medtronic, Inc.
- Varian Medical Systems, Inc.

NREF CORPORATE LEADERSHIP COUNCIL:
AN ANNUAL FORUM TO STRENGTHEN TIES

The mission of the Corporate Leadership Council (CLC) is to provide a forum for discussion and collaboration between the NREF, NPA, the AANS and corporate supporters on issues related to neurosurgical education, research, advocacy and patient care. The CLC includes representatives from current corporate partners, joined by members of the NREF Board of Directors and NREF Development Committee.

The 2016 meeting of the CLC was held Saturday, Jan. 16, 2016, in Dallas. Led by Michael W. Groff, MD, FAANS, chair of the NREF Development Committee, the meeting focused on the success of current NPA registries and how corporate partners can work with the NREF and NPA on future projects. Participating companies included Brainlab, Nuvasive, Penumbra, Varian, DePuy Synthes, Integra, Medtronic, K2M and Intrinsic Therapeutics. An update on legislative issues and physician/industry relations was also presented by the Washington, D.C., Office.
HONOR YOUR NEUROSURGICAL MENTOR

Neurosurgeons have demonstrated tremendous generosity while paying tribute to the luminaries of the specialty who have helped build careers. Once donations to an Honor Your Mentor fund total $50,000 or more, the accounts generate ongoing support for a designated educational or research purpose. Pictured is the Honor Your Mentor wall from the NREF exhibit booth at the 2016 AANS Annual Scientific Meeting where attendees had the opportunity to recognize those who have impacted their careers. Visit the NREF website to pledge a donation to your neurosurgical mentor.

Current Honor Your Mentor funds represent nearly $1.5 million received of the nearly $2.3 million in current pledges:

A. Leland Albright Fund  
To support neurosurgery resident and fellow education in Africa

Roy Bakay Fund  
To be utilized for research in stereotactic and functional neurosurgery

Ulrich Batzdorf Fund  
To be utilized for basic science research in spinal cord injury

Dr. Warren C. Boop Jr. Family Fund  
To support resident education and research within the Department of Neurosurgery at the University of Arkansas for Medical Sciences

Charles Drake Fund  
To honor the memory of the late Charles Drake, professor and chair Emeritus at the University of Western Ontario

Stewart Dunske Fund  
To be utilized for clinical or basic science research and fellowships in spine

Regis W. Haid Jr. Fund  
To be utilized for spinal clinical outcomes studies, fellowship research projects

John A. Jane Sr. Fund  
To be utilized for resident education and research through the NREF

David Kline Fund  
To support education and clinical or basic science research in peripheral nerve

Charles Kuntz IV Fund  
To be utilized for spinal clinical outcomes studies and fellowship research projects

Sanford Larson Fund  
Award for best spine research paper at the AANS Annual Scientific Meeting
Edward Laws Fund
To support resident education and research within the Department of Neurosurgery at the Brigham and Women’s Hospital

Lyal G. Leibrock Fund
To contribute funds for medical students, residents and young neurosurgeons for socio-economic education

Karin M. Muraszko Fund
To help develop leaders in neurosurgery by providing mentoring and didactic education

Andrew Parsa Fund
To fund a fellowship or research grant for brain tumor research

Donald O. Quest Fund
To fund the Quest Research Awards

Albert L. Rhoton Jr. Fund
To support the maintenance and development of The Rhoton Collection® and funding for micro neuroanatomical research fellowships

James T. Rutka Fund
To support the Tumor Section in their area of greatest need

Volker Sonntag Fund
To be utilized for IRB clinical outcome studies, clinical or basic science research and fellowships in spine

Philip E. Stieg Fund
To fund a skull base research fellowship at the Weill Cornell Medical College Department of Neurological Surgery

Charles Tator Fund
To be utilized for basic science research in spinal cord injury

Charles B. Wilson Fund
To fund brain tumor research
UNIVERSITY OF MIAMI WINS ANNUAL NEUROSURGERY CHARITY SOFTBALL TOURNAMENT

Thirty-four teams of neurosurgeons from top medical institutions around the country competed on June 11, 2016, in New York City’s Central Park as part of the 13th Annual Neurosurgery Charity Softball Tournament (www.NeuroCharitySoftball.org). The event was hosted by Columbia University and raised funds for the Andrew T. Parsa Honor Your Mentor fund for brain tumor research. In the past, the annual event has raised as much as $75,000 for neurosurgical research. “The event was a success again this year, securing much-needed support for brain tumor research,” according to tournament founder and co-director Ricardo Komotar, MD, FAANS, of the University of Miami. The University of Miami claimed their second championship in five years by beating Emory in the finals.
OUR DONORS: BUILDING A CULTURE OF PHILANTHROPY

CUSHING CIRCLE OF GIVING

The Cushing Circle is comprised of philanthropists who are passionate about helping patients through the specialty of neurosurgery by supporting neurosurgical research, education and outcome studies. Join this elite group of members committed to the mission of the NREF by contributing cumulative (lifetime) giving of $25,000 or more by visiting the NREF’s Donate webpage or contacting the NREF office.

The NREF is grateful to the following generous individuals and groups who comprise the NREF Cushing Circle of Giving as of June 30, 2016:

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The Board of Directors of the NREF is grateful to the many individuals, groups, medical practices, corporations and neurosurgeon members who provided their generous support to the NREF from July 1, 2015, through June 30, 2016.

**Summa Cum Laude ($5,000 and above)**
- Arvind Ahuja, MD, FAANS
- Frederick G. Barker II, MD, FAANS
- Frederick A. Boop, MD, FAANS
- Ennio Antonio Chiocca, MD, PhD, FAANS
- Aaron A. Cohen-Gadol, MD, FAANS
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—Gary Bloomgarden, MD, FAANS
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The Roper family in memory of Dr. Albert Rhoton Jr.
Sacramento Zoological Society in memory of Barry French, MD
Irv and Trudy Salmeen in memory of Kate Carney
The Schmole family in memory of Kate Georgia Carney
Nash Whitney Schott in memory of Dr. Albert Loren Rhoton Jr.
In the past year, the NREF has received donations totaling over $20,000 in memory of Kate Georgia Carney (2006-2015), an eight-year old girl from Rocky River, Ohio, who died in September 2015 after suffering a large hemorrhage from an arteriovenous malformation (AVM).

Through donations from the public and matching gifts from our fellow neurosurgeons in the CV Section, plans are to award the “Kate Carney Cerebrovascular Research Fellowship Grant” focused on AVMs in Spring 2017. The NREF is grateful to the Carney family and their local community for their generosity in directing donations from a community-wide 5K race and other activities in her memory.

The earthquakes in Nepal in 2015 caused widespread devastation and more than 7,000 deaths. The NREF, in collaboration with the American Association of South Asian Neurosurgeons (AASAN) and the World Federation of Neurological Societies (WFNS), created a Nepal Relief fund that raised contributions from individuals and corporations for the relief effort and to facilitate the donation of equipment and supplies from companies. The joint effort was led by the AASAN, a U.S.-based organization committed to national and global neurosurgical efforts. Donations were enough to help 50 patients in Nepal, as reported by Sushi K. Shilpakar, MD.
TRIBUTES

The following contributions were made in honor of colleagues, family members and friends:

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Tetsuo Tatsumi, MD, in honor of Dr. Albert L. Rhoton Jr.
Tao Xu, MD, PhD, on behalf of over 100 Chinese neurosurgeons and "Neurosurgery News" in support of the Rhoton Fund.

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Several Chinese neurosurgeons were trained in Dr. Rhoton’s lab, and his book is regarded as the ‘bible’ by nearly every young neurosurgeon in China. We have learned very much from his legendary work. We believed it was our responsibility to do something to honor the memory of this great mentor. It is our sincere hope that his lab will remain open and train more young neurosurgeons from all over the world.

—Tao Xu, MD, PhD, on behalf of over 100 Chinese neurosurgeons and "Neurosurgery News" in support of the Rhoton Fund.
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NEUROPOINT ALLIANCE:
THE PEOPLE BEHIND THE NUMBERS

The NeuroPoint Alliance (NPA) is a not-for-profit, 501(c)(6) corporation that was created to oversee and coordinate a variety of projects involving the acquisition, analysis and reporting of clinical data affecting neurosurgical practice. NPA also serves as a resource for neurosurgeons and others who want to perform multicenter clinical trials and post-marketing surveillance of neurosurgical devices. NPA’s present projects include an industry-sponsored registry for stereotactic radiosurgery, investigator initiated multicenter trials of EC-IC bypass procedures, management of cervical spondylotic myelopathy and the well-established Quality Outcomes Database (QOD) projects in spine and cerebrovascular surgery.

Recent and developing NPA initiatives include a partnership with the American Academy of Physical Medicine and Rehabilitation (AAPM&R) to create a spine care registry, collaboration with movement disorder neurologists and industry to create a deep brain stimulator registry, a joint project with the Institute for Healthcare Improvement (IHI) that will utilize data from our QOD-Spine Surgery registries to improve the quality of spine surgery and partnering with the FDA and the Society of Neuro Interventional Surgery (SNIS) to create a post-marketing surveillance registry for clot retrieval devices used in the care of acute, ischemic stroke patients.

NPA also works closely with other neurosurgical organizations, including the American Board of Neurological Surgery (ABNS), Congress of Neurological Surgeons (CNS), Neurosurgery Research & Education Foundation (NREF), the Journal of Neurosurgery Publishing Group (JNSPG), Society of Neurological Surgeons (SNS) and the Spine Section – all of whom have representatives on our Board of Directors. NPA has become neurosurgery’s data management organization, and we can be very proud of its accomplishments. The NPA is recognized by neurosurgeons, other physicians, hospitals, payors, industry leaders and federal agencies as an essential organization for improving the quality of patient care.

Robert E. Harbaugh, MD, FAANS
2015-2016 NPA Chair
NEUROPOINT ALLIANCE’S MISSION

Organized neurosurgery believes that prospective, systematic tracking of practice patterns and patient outcomes will allow surgeons from multiple specialties to improve the quality, efficiency and ultimately, the value of care. In support of this mission, the AANS, in cooperation with a broad coalition of other neurosurgical societies including the CNS, SNS and ABNS, created the NPA, a not-for-profit corporation, in 2008.

NPA coordinates a variety of national projects involving the acquisition, analysis and reporting of clinical data from surgical practice. NPA is designed to meet the quality care and health care research needs of individual surgeons and surgical practices, national organizations, health care plans, biomedical industry and government agencies. NPA is devoted to gathering, analyzing and publishing data on the science of surgical practice, which is the habitual and systematic collection, analysis and feedback of data, inseparable from practice, via its audited registries. NPA’s QOD is the largest spine registry in the U.S.

GOVERNANCE STRUCTURE

NPA’s Board of Directors is comprised of representatives from the CNS, SNS, ABNS, AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves, the JNSPG and the NREF. The Board of Directors is responsible for setting the strategic direction of the NPA.
Mohamad Bydon, MD

Recently appointed vice director for the NPA’s Quality Outcomes Database (QOD), Mohamad Bydon, MD, works with senior leadership to provide clinical oversight for the Quality Outcomes Database (QOD) registry in the areas of data management, integration, analysis, reporting and quality control. In this role and working with QOD’s Practice Based Learning Network, he has developed education materials for the registry and facilitated training seminars for QOD registry centers.

Dr. Bydon was also instrumental in the refinement of QOD Spine Registry data collection processes, providing essential input on the areas of inclusion/exclusion criteria, the auditing plan and other quality control areas and contributed to the development of the first neurosurgery-specific spine measures for the Centers for Medicaid & Medicare’s Physician Quality Reporting System (PQRS) and development of the NPA’s QOD Qualified Clinical Data Registry (QCDR) in 2015 and continuing in 2016.

When asked why he has become so involved with the NPA’s initiatives, he said “Although well-intentioned, the regulatory burden is posing challenges for many physicians who enjoy taking care of patients and want patient care to be their primary focal point. Physicians have historically, and for good reason, directed their time and attention to treating patients and have left the external variables to others. Today, with increasingly limited resources for health care and with unfunded regulatory mandates, there are expectations that physicians engage health care policy decision makers. The surgical specialties in particular have been tasked with providing outcomes data that demonstrate the value of their particular interventions.

“The triangle of health care rests on cost, quality and access. You can maximize two of these three; but it is nearly impossible to maximize all three. As cost containment efforts come into play, either quality will decrease or access will become more limited. Regulators are asking for high quality at low cost with full access. One example of the imbalance is the cardiac surgery in New York where outcome data penalized those doing the most complex cases to a point where it became difficult for high-risk patients to get heart surgery. These are the unintended consequences of regulations that do not include physician input.”
QOD puts data collection in the hands of neurosurgeons to provide meaningful data that will assist doctors in helping patients make the best decisions about their treatment options, and Dr. Bydon has served as a contributor on several of the QOD’s manuscripts and analyses, including spine predictive models, return to work and 3- and 12-month outcomes.

QOD’s primary purpose is to provide highly reliable, quality information on which interventions provide benefit for specific subsets of patients. This helps give control of care back to patients while helping physicians provide the best care advice. “Surgeons should utilize data to improve patient care, develop alternative treatments and better define how patients will benefit from treatment,” said Dr. Bydon. “There is a tremendous benefit to giving doctors control of this data, and combining this data with input from surgeons’ practical expertise enables appropriate policy reform,” he added.

When asked what the future holds for QOD, Dr. Bydon responded, “QOD is different from the existing regulatory and administrative databases; it is a surgical registry whose goals are aligned with the practice of surgery and patient care.”

Dr. Bydon serves as the AANS/CNS Spine Section Liaison to the NPA Board of Directors for 2016-2017 and is also one of AANS’ members on the AANS-AAPM&R Joint Spine Registry Task Force, which is developing a business model for a joint registry project.
MAJOR INITIATIVES AND ALLIANCES

REBRANDING: N2QOD BECOMES THE QUALITY OUTCOMES DATABASE

Five years ago, in an effort to meet the growing need for tools to measure and promote quality care, NPA collaborated with several national stakeholders to create an unprecedented program: the National Neurosurgery Quality and Outcomes Database (N2QOD). In 2016, N2QOD expanded beyond the boundaries of its name. Now known as the multi-specialty QOD-Lumbar Spine (including Deformity), QOD-Cervical Spine and QOD-Neurovascular registries, any actively participating surgeon, practice group or hospital system in the U.S. can contribute to and access aggregate quality and outcomes data through a centralized, nationally-coordinated quality program.

Launched in February 2012, the QOD-Lumbar Spine Registry had over 80 contracted centers with more than 25,000 patients enrolled in 69 sites at the end of fiscal year 2016. The QOD-Cervical Spine Registry launched in March 2013 and at the end of June 2016 had 53 active centers with nearly 9,500 patients enrolled. In December 2014, the QOD expanded its spine registry to accommodate the inclusion of mild to moderate lumbar spinal deformity cases. The QOD is the largest U.S. multi-institutional spine registry and provides its participating physicians with access to the information necessary to make the best data-driven decisions.

The NPA chose Vanderbilt University Medical Center (VUMC), one of the nation’s leading centers in health services research and medical informatics, to provide data coordination, analysis and reporting services for the QOD registries. Given the complexities of spine procedures, QOD has created an extraordinary measurement system to track patient data. Spine surgery had never before been broadly characterized in a comprehensive, prospective national database. NPA has strong analytic support from VUMC to manage QOD data and translate that learning into real outcome changes for patients.

“It was very insightful for the NPA to drop ‘Neurosurgery’ from the title and call the registry QOD going forward and to open up the registry to other specialties like pain management to help them assess their quality. It was also helpful that certain exclusion criteria were relaxed which will allow our site and others to enroll more of our patients in the registry,” said Stacey Snodgrass, clinical manager at the University of Oklahoma Health Sciences Center, Department of Neurology & Neurosurgery.
QOD-NEUROVASCULAR
With the QOD-Spine program successfully established, the NPA expanded into other subspecialty areas of neurosurgery with the QOD-Neurovascular Registry. The Neurovascular Registry collects data on treatments for aneurysms, AVMs, carotid stenosis, intra-arterial thrombolysis or mechanical thrombectomy and intraparenchymal hemorrhage and was implemented in December 2014 following a six-month pilot phase.

QOD AND QCDR
NPA strives to help surgeons treat their patients better through novel, national data systems that incorporate relevant measures of surgical quality. The data are used to advance medical evidence, which is used to promote quality and improve real-world care. Data collection and analysis is not only important for surgeons to validate their treatment outcomes for patients, peers, publishers and payors, it is taking the responsibility for quality assurance to the highest level. Participating centers are actively involved with NPA and each other to help define and follow good practices for data completeness and data consistency for accurate interpretation, reporting and analysis consistent with high data quality standards.

QOD was designated as an official Centers for Medicare & Medicaid Services (CMS) Qualified Clinical Data Registry (QCDR) vendor for 2016, providing an additional means through which eligible providers could participate in the Physician Quality Reporting System (PQRS). There is an increasing demand for neurosurgeons to demonstrate to payors and the public the value of the

“The real break-through at our site in particular was when we started receiving quarterly reports showing where our organization stands compared to other practices. As a data coordinator, it is easy to lose sight of why we invest significant efforts into collecting all of this data. Our providers became very engaged once they began to see quality data reports resulting from our efforts and can use the data for their own projects and publications. As we have continued to grow through the years with QOD, we have moved into the most exciting phase of our collection efforts to date. With the onboarding of our own PhD to lead our data analyzation efforts, we have begun to produce patient-facing resources to assist patients and providers with shared decision-making and have discussed physician-facing report cards. We have used our data during insurance contract negotiations and for quality projects. We emphasize our abilities to return patients to work quickly and safely while reducing pain and improving quality of life. We are also using data to build in-roads with several area hospitals to emphasize consistency across the care dynamic. For me, as a data coordinator, it has been challenging and exciting to have built the foundation of these collection efforts and then see the process come full circle to benefit the practice and improve the patient experience. We now have tools that help make decisions while also emphasizing the value of surgical spine care treatment in a health care market driven to reduce costs.” —Melissa Mehrlich, RN, MHA, CCRP, Carolina Neurosurgery and Spine Associates, Charlotte, N.C.
services they provide. With the exception of the CMS’ Physician Quality Reporting Initiative (PQRI), these efforts are largely fragmented and decentralized among different payors. By managing a national quality reporting infrastructure, NPA meets the current needs of neurosurgeons while collecting data that influences the design and selection of future quality outcome measures.

**QOD’S PATIENT-SPECIFIC PREDICTIVE CALCULATOR**

QOD was designed with a longitudinal structure and includes patient-reported outcomes (PROs). QOD is the only nationally coordinated registry in the U.S. to measure one-year effectiveness of care using validated, patient-centered measures. PROs are a key element in patient-centered care, as they may be more reflective of underlying health status than physician reporting. The registry contains multiple enrollment variables (patient; structural; clinical; surgical) and longitudinal quality data focused on PROs for risk adjustment.

As such, QOD’s design allows for additional meaningful quality improvement efforts that directly benefit patients. A web-based predictive calculator for registry centers has been developed for piloting in fiscal year 2017. This tool will facilitate and simplify informed patient decisions by returning individualized outcome probability graphs demonstrating and predicting the disability, pain and quality of life outcomes for the patient. Data analyses include expected benchmarks of care and predictive outcomes derived from the 12-month follow-up data, identifying ways to improve the value of care in spine patients.

Using the predictive calculator, surgeons can enter certain patient characteristics and the type of procedure to determine whether similar patients benefitted from a particular treatment. For example, initial QOD results showed that while 85 percent of patients benefitted from surgery, patients with a high body mass index (BMI), smoking and diabetes appear to have poorer outcomes after spinal surgery. “If [a patient] can get the risk factors under control or quit smoking, that would really improve the outcomes of surgery,” says Robert E. Harbaugh, MD, FAANS.
The NPA wishes to thank the following institutions for their participation in the QOD registries:

- Allegheny Health Network
- Atlantic Neurosurgical Specialists
- Augusta Back Neuroscience
- Baptist Hospital of Miami
- Barrow Neurological Associates
- BayCare Clinic
- Brain and Spine Surgeons of New York
- Butler Health System
- Carle Foundation
- Carolina Neurosurgery & Spine Association
- Center for Neurosciences
- Centra Health
- CNOS (PhyCare LLC)
- Colorado Springs Neurological Associates
- Columbia University
- Community Hospital
- Duke University
- Florida Hospital
- Geisinger Clinic
- Goodman Campbell Brain & Spine
- Henry Ford Health System
- HonorHealth Osborn Medical Center
- IGEA Brain & Spine
- Jackson Memorial Hospital
- Johns Hopkins University
- Maine Medical Partners
- Memorial Hermann Health System
- Milton S. Hershey Medical Center
- Mission Hospital
- Mount Sinai Hospital
- Neurological Associates, Inc.
- Neurosurgical Associates, P.C.
- Neuroscience Group
- Neuroscience Specialists
- NeuroSpine Center of Wisconsin
- North Jersey Brain & Spine Center
- North Shore LIJ Health System
- NorthBay Medical Center
- NorthShore University Health System
- Norton Leatherman Spine Center
AANS/ASTRO STEREOTACTIC RADIOSURGERY (SRS) REGISTRY

NPA’s Stereotactic Radiosurgery (SRS) registry represents collaboration between the AANS and the American Society for Radiation Oncology (ASTRO). This registry defines national patterns of care in radiosurgery, with an eye toward improving health care outcomes, supporting informed decision-making and potentially lowering the cost-of-care delivery to patients. The registry captures treatment information for thousands of patients affected by brain metastases, benign brain tumors and AVMs.

“As SRS is performed in a multi-disciplinary fashion, the partnership between AANS and ASTRO on this registry makes a lot of sense,” said Jason P. Sheehan, MD, PhD, and co-director of the SRS Registry program. Working together, the AANS and ASTRO perform better science to improve quality and patient outcomes. Moreover, corporate partners want us to work together on a single, national SRS registry. The data elements, acquisition of the data, data analysis, data governance and dissemination of findings are overseen by the SRS registry board.”

Explaining how this registry differs from its counterparts, Dr. Sheehan notes, “The SRS registry is funded in large part through educational grants from corporate partners Brainlab and Elekta. There is also financial, administrative and intellectual support and governance given by the parent professional societies. The registry is truly a national effort.”

In the current three-year period, diverse, high-volume SRS sites are accruing patients to the registry. Data is collected prospectively and stored in a data repository housed by Quintiles, a national company with extensive experience in medical trials and analytics.

The NPA wishes to thank the following institutions for their participation in the SRS registry:

Penn State Hershey Medical Center  University of Southern California in Los Angeles
Huntsman Cancer Institute—University of Utah  William Beaumont Hospital
Jefferson Hospital for Neuroscience  Carolinas Medical Center
Vanderbilt University Medical Center  NYU Langone Medical Center
University of Virginia Health System  University of Colorado Hospital and UCH
Norton Cancer Institute  Rocky Mountain Gamma Knife Center
UF Health Cancer Center at Orlando Health  University of Cincinnati, Mayfield Clinic
CERVICAL SPONDYLOTIC MYELOPATHY STUDY
The purpose of this interventional study is to determine the optimal surgical approach (ventral vs. dorsal) for patients with multi-level cervical spondylotic myelopathy (CSM). There are no established guidelines for the management of patients with CSM, which represents the most common cause of spinal cord injury and dysfunction in the U.S. and in the world.

This study, which began in April 2014, aims to test the hypothesis that ventral surgery is associated with superior Short Form-36 Physical Component Score (SF-36 PCS) outcome at one-year follow-up compared to dorsal approaches and that both ventral and dorsal surgery improve symptoms of spinal cord dysfunction measured using the modified Japanese Orthopedic Association Score (mJOA). A secondary hypothesis is that health resource utilization for ventral surgery, dorsal fusion and laminoplasty surgery are different. A third hypothesis is that cervical sagittal balance postoperatively is a significant predictor of SF-36 PCS outcome. The study is expected to conclude in September 2021. The final data collection date is September 2017 for the primary outcome measure.

EXTRACRANIAL-INTRACRANIAL ARTERIAL BYPASS REGISTRY
The EC-IC Bypass Study is a prospective registry evaluating EC-IC bypass for carotid occlusion with persistent or unstable symptoms failing medical management. The study is accruing patients from 11 centers, over three years with 24-month follow-up. Funds for the project were donated by a patient and matched by the Wallace Foundation, which has also committed funds for the development of a follow-up project, assessing mechanisms to facilitate data transfer from the electronic medical records to the QOD.

“Every hospital should follow every patient it treats long enough to determine whether the treatment has been successful, and then inquire ‘if not, why not’ with a view to preventing similar failures in the future.” —Ernest Codman, 1914
NEW FOR 2017

THE AANS AND ACADEMY OF PHYSICAL MEDICINE & REHABILITATION SPINE REGISTRY

The AANS and the American Academy of Physical Medicine and Rehabilitation (AAPM&R) are developing an all-care registry for spine patients. The registry will track surgical and non-surgical (therapeutic and other interventions) longitudinally, and collectively, the data will have the ability to advance the understanding of this ever-growing patient population while demonstrating the quality and value of treatments.

“We are exceedingly excited about the potential of this joint registry. Physiatrists and neurosurgeons are natural partners in caring for patients suffering spine disorders throughout the continuum of care. Through this registry and for the first time, we will have a meaningful database with PROs that will allow us to understand which patients respond to medications, which ones respond to physical therapy, which ones respond to percutaneous treatments and, finally, which ones are best served by surgery. While we normally try all conservative options up-front, we may be able to predict which patients are destined to fail those interventions, and we can go directly to some form of percutaneous or open surgical procedure to, hopefully, eliminate suffering quicker. As the database matures, we will be able to communicate very directly with a patient and say ‘we can predict that this treatment for you has an 85 percent chance of improving quality of life.’ This knowledge will be empowering to physicians as well as patients. We look forward to a long and productive relationship with our colleagues from the AAPM&R,” added 2015-2016 AANS president, H. Hunt Batjer, MD, FAANS.

INSTITUTE FOR HEALTHCARE IMPROVEMENT PROJECT

The NREF has provided funding to support the NPA’s joint study with the Institute for Healthcare Improvement (IHI). The IHI, a non-profit organization based in Cambridge, Mass., is a leading innovator in health and health care improvement worldwide. The collaboration’s one-year, cooperative project, Driving Quality Improvement in Spine Surgery: Reducing 90-Day Readmissions Following Elective Spine Surgery, will develop, test and implement an approach to improving outcomes and reducing 90-day readmissions for spine surgery patients. “The end product will be a ‘tool kit’ for participating surgeons and hospitals around the nation to improve health outcomes following elective spine surgery, as well as reinforcing a culture of continuous quality improvement,” commented Anthony L. Asher, MD, FAANS, vice chair of NPA and QOD director.
FDA POST-MARKET SURVEILLANCE PROJECT
The Food and Drug Administration (FDA) is in discussions with NPA to establish a collaborative registry project that would provide post-market surveillance services to the FDA and industry. The Medical Device Epidemiology Network (MDEpiNET) is a national planning board tasked with evaluating regulatory-grade data sources for the establishment of a national, and possibly international, coordinated registry network for medical device studies to identify complications. Established registries, such as those developed by NPA, provide the potential to enhance post-market device evaluation in a cost-effective and standardized manner.

NIH OPPORTUNITIES
The National Institutes of Health (NIH) is discussing a potential registry project to generate data for un-ruptured intracranial aneurysms through a multi-center registry, with propensity matching. Other potential projects include studies on brain metastases.

WHAT WE HAVE LEARNED
The NPA focuses its clinical registries on promoting the quality of surgical care and providing surgeons with the means to assess risk-adjusted measures of the value and durability of treatment responses. Its registry programs and collaborative efforts assist in the understanding of patient perspectives on clinical outcomes and provide the ability to compare the relative effectiveness of various therapeutic interventions.

Clinical data registries have become valuable tools to support evidence development, performance assessment, comparative effectiveness studies and adoption of new treatments into routine clinical practice. The NPA remains committed to its efforts to provide surgeons with the means to demonstrate value and validity in reporting and improving quality of surgical care through the collection and analysis of outcomes data.
FISCAL 2016 FINANCIAL SUMMARY

AANS, NREF AND NPA

Over the last decade, with the good stewardship of its governance, the AANS built a healthy reserve that serves to protect the organization in the event of financial adversity. Now that the AANS has reached, and even exceeded, its reserve goals, there has been a change in the policies that relate to how the organization budgets for investment income.

Fiscal year 2016 was the first year the AANS established a budget based on anticipated income from investments. This practice enables the AANS to use all of its available resources in the pursuit of benefits for the membership. Based on both history and projections for the future, the AANS anticipated an investment yield of $600,000 in fiscal year 2016. As it turned out, those 12 months were not a strong investment period. The organization ended up losing nearly $100,000 instead of realizing the anticipated $600,000 gain and caused the association’s final numbers to show a net loss of $685,000. Based on historical investment data, it is anticipated that future investment performance will even this out.

Similar investment performance resulted in a loss for the NREF of $200,000 in fiscal year 2016.

NPA showed a modest profit in this fiscal year.

This report reflects the financial statements of the AANS, NREF and NPA covering the period of July 1, 2015 to June 30, 2016.

While the year-end financials of the AANS, NREF and NPA are audited by outside auditors, this Annual Report is being prepared prior to a completed audit and contains unaudited final numbers. Any material differences between a published financial statement and the auditor’s report will be communicated to AANS members in AANS Neurosurgeon. Copies of the most recent audit are available to members by writing to: AANS Accounting Department, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008-3852.
AANS AND RELATED ORGANIZATIONS STATEMENT OF FINANCIAL POSITION*  06/30/2016

*This report reflects unaudited financials.

**ASSETS 2015-2016**

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<th>NPA</th>
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**LIABILITIES AND EQUITY**

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**AANS AND RELATED ORGANIZATIONS INCOME STATEMENT** For the Year Ended 06/30/16

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**CONSOLIDATED REVENUE SOURCES**

- Dues/Contributions Income
- Annual Meeting Income
- Publications
- EPM
- Fundraising
- Resident and Clinical Courses
- Investments
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 payors.

• 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.

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Parliamentarian/Legal Counsel
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