AANS PRESIDENT’S MESSAGE

Members of the AANS:

It has been a tremendous honor for me to serve as your president, especially in this year when the AANS’ membership surpassed 11,000. This demonstration of your confidence in my leadership abilities is and will remain the greatest moment of my professional career.

During the past year, as part of our strategic planning process, the AANS performed a membership needs assessment. We do this every few years in order to make certain that we continue to meet your evolving expectations and priorities. With over 1,000 responses received, we were able to establish, once again and by a large majority, that member focus is directed to education and advocacy.

Education is evolving at an ever-accelerating pace. Despite the rush forward, the best way to prepare for the future is to study and understand the lessons from the past. In neurosurgery, it was the many advances of Harvey Cushing, MD, and his mentees that really changed surgical training from ‘the American trainee traveling to Europe to learn the state-of-the-art’ to ‘the European trainees traveling to America to observe the greatest advances in neurosurgery.’

In 1920, Cushing and 11 of his colleagues established the Society of Neurological Surgeons (SNS), the first neurosurgical society in the world. This small group of surgeons would visit one another’s operating rooms, see how each positioned patients, watch the skin incisions and burr holes and study — in person — how members performed surgery. Learning neurosurgery observing a master continues to be an essential training tool today, but that viewing can now happen across continents rather than a room.

Those of us in the field of neurosurgery have benefitted enormously from the rich and diverse culture created for us by our founding fathers. The culture established by our early leaders has built a legacy of excellence, and it has also provided a framework we follow to help us continue to achieve that excellence.

The second area of member focus, advocacy, or patient advocacy, is truly part of a neurosurgeon’s and this association’s DNA: From the day we don our cloaks and take our oaths, we each become advocates for both our patients and our specialty. By 1975, the specialty of neurosurgery had become so large with needs so unique that the profession could no longer rely upon the American Medical Association (AMA) or the American College of Surgeons (ACS) to represent its interests at the national level, resulting in neurosurgery’s first lobbyist, Charles Plante, being hired.
As neurosurgeons, our culture knows no political, racial or religious boundaries. As neurosurgeons, this world — our world — truly is a world of innovation.

The Washington Committee and Washington Office began with six neurosurgeons, three from the AANS and three from the Congress of Neurological Surgeons (CNS). It had an annual operating budget of $12,000. Mr. Plante’s early efforts were aimed at increasing National Institutes of Health (NIH) funding for neurosurgical research, lobbying for improved liability reform and working to improve trauma services.

As we near the end of our first century as a specialty, our ongoing advocacy efforts have helped us endure the barrage of health care reforms that have become a part of our daily lives. The neurosurgical culture of excellence has positioned us as leaders from whom politicians and professionals alike seek guidance.

And how do we continue to embrace this leadership position? We bring education and advocacy forward with us into the future, leveraging and embracing new methodologies and technologies.

Salman Khan, who gave this year’s Hunt-Wilson Lecture, discussed how Massive Open Online Courses (MOOC) have changed the world of education. Whereas traditional classrooms are limited to small numbers of students, MOOCs can educate tens of thousands of students per class. One master teacher can reach far beyond a single classroom, thanks to platforms like Khan Academy.

The AANS invests in high-quality education for its members, and more and more educational opportunities are happening via online platforms. Through generous support from the Neurosurgical Research & Education Foundation (NREF) and the tireless efforts of Jeffrey M. Sorenson, MD, FAANS, we now have an increasing number of online educational tools that permit a neurosurgeon with internet access, anywhere in the world, to review relevant surgical anatomy, see how to position a patient and where to make an incision and then watch high definition videos of experts performing neurosurgical operations.
The Rhoton Collection®, now available as an app, has been linked to the Journal of Neurosurgery (JNS) so that by clicking on key words in a JNS article, the reader is instantly taken back to The Rhoton Collection. There is an Instagram version and, thanks to neurosurgeon Jimmy Chuang, MD, a Chinese translation of Dr. Rhoton’s lectures. The AANS’ learning management system, housed in the updated AANS.org, makes sharing education with members as easy as the click of a button.

Additionally, I would like to thank Aaron A. Cohen-Gadol, MD, FAANS, for the creation and stewardship of The Neurosurgical Atlas. Through a collaboration with the JNS and the AANS Grand Rounds, members have access to this exciting series of neurosurgical resources that collectively offer a high-quality education in operative procedures.

As the NeuroPoint Alliance (NPA) matures, it provides the AANS with the ability to serve not only as a national data repository, but also as an international center for neurosurgical clinical trials. Industry partners have recognized this and have helped us develop prospective registries such as the Stereotactic Radiosurgery (SRS) Registry, which can store complex MRI images and data sets, including patient reported outcomes (PROs). With the NPA to help us look at accumulated historical data, we can better map out the best path forward for our patients.

In the age of globalization, it is worth noting that our public reporting of quality and performance metrics is not only viewed by our public but is also on display to the world. The quality metrics that we establish serve as a barometer for health care on a global stage. As the world economy improves, more and more patients are able to seek a provider of their choice and are no longer geographically constrained. On the upside, as more countries adopt better standards of care, the quality of health care worldwide will only improve. Conversely, unlike other commodities, health care involves complex cultural, ethical and social differences, which will present us with new challenges.

Moving forward means continuing our legacy of collaboration around the world. As neurosurgeons, our culture knows no political, racial or religious boundaries. As neurosurgeons, this world — our world — truly is a world of innovation.

I thank you for allowing me to serve,

Frederick A. Boop, MD, FAANS
2016–2017 AANS President
AANS PRESIDENT’S MESSAGE

The AANS began an extensive strategic planning initiative in FY 2017 that is continuing into FY 19, based — in part — on the membership survey we completed this past year. In Dr. Boop’s letter, he refers to our members’ continuing emphasis on education and advocacy, and this Annual Report presents the expansive achievements of the AANS, NREF and NPA in these areas.

Leaders of organizations involved in the strategic planning reinforced the importance of maintaining an efficient infrastructure, a robust governance structure and an experienced professional staff, all of which serve to help the AANS to consistently:

- Support meaningful philanthropy;
- Advance members’ education and career advancement;
- Collect and analyze data that can guide clinical decision making; and
- Advocate for more favorable practice environments that enable members to provide the best care for their patients.

The AANS recognizes the invaluable and ongoing contributions of the subspecialty sections and the Council of State Neurosurgical Societies (CSNS). The AANS makes it the highest priority to work with leadership of these esteemed groups on transparent budgeting and NREF fund management and strives to provide the professional services needed to help these entities achieve their goals.

The achievements profiled in this Annual Report are but milestones to future innovations. We thank all of our volunteer leaders for their talent and expertise and our donors and corporate partners for their ongoing support.

Kathleen T. Craig
Executive Director
NEUROSURGERY: A WORLD OF INNOVATION

The 85th AANS Annual Scientific Meeting
April 22–26, 2017

On entering the Los Angeles Convention Center, attendees walked over a 140,000 square foot, inlaid terrazzo map of the world, installed by Alexis Smith. The stunning visual provided a graphic tie-in to the meeting theme: *Neurosurgery: A World of Innovation.*

In the convention center, the Opening Ceremonies featured a panel of thought leaders who focused on global medical issues. Participants included Paul Farmer, MD, PhD; Michael M. Haglund, MD, PhD, FAANS; Walter D. Johnson, MD, FAANS(L); Vanessa Kerry, MD, MSc; and moderator, Sanjay K. Gupta, MD, FAANS. The discussion focused on the standards of medical care across the globe, the definition of sustainability and the need to separate the idea of sustainable from that which was – simply – not sustained.

The Opening Reception took place in Microsoft Square at L.A. LIVE, where attendees sampled Wolfgang Puck’s cuisine and enjoyed the musical stylings of the Memphis Blues Remedy and the conversation and collegiality of 1,800 attendees.
Meg Whitman

Distinguishing herself from her audience, Meg Whitman announced that her job is not about life and death. Her job’s focus is on the idea economy and the ongoing technological transformation of everything. This transformation is ongoing and ubiquitous: Everyone needs to evolve how they are doing things and embrace a culture of agility.

As an example, she cited Uber, which she called the “poster child for digital disruption.” The transportation company has completed over 2 billion rides in 80 countries. She explained that survival is all about speed. She believes that the taxi industry had time to respond to the business threat posed by Uber but believes it did not have the IT infrastructure to create a viable response: a shortcoming that cost taxis those 2 billion customers.

Whitman shared five of her top management lessons:

1. Always be looking for the right person with the right attitude who is ready to do the right job at the right time. Hire ahead of the curve.
2. Focus on the customer. You don’t know what you don’t know. The customer knows what you don’t know.
3. Always be listening, especially to your stakeholders.
4. Create an efficient cost structure.

Everyone needs to evolve how they are doing things and embrace a culture of agility.
85TH AANS ANNUAL SCIENTIFIC MEETING

Distinguished Lecturers

HUNT-WILSON LECTURE
Salman Amin Khan
Khan Academy began as a way for Khan to assist his cousins with their school work. His program works to identify and then fill knowledge gaps with video instruction. The lessons are being accessed by 50 million registered students in 190 countries around the globe.

RICHARD C. SCHNEIDER LECTURE
Kevin J. Tracey, MD
Dr. Tracey discussed the frontier of bioelectronic medicine, where today it is a drug replacement and tomorrow it may treat conditions as diverse as ischemia, hypertension, diabetes, cancer, shock and sepsis.

RHOTON FAMILY LECTURE
Evandro Pinto da Luz de Oliveira, MD, PhD, IFAANS
Dr. Oliveira shared his personal memories in his lecture, Memories of a Giant—Al Rhoton and Sculpting the Brain like Michelangelo. He concluded by announcing that Rhoton’s Microsurgical Research Lab has been moved to the Mayo Clinic in Jacksonville, Fla.

VAN WAGENEN LECTURE
Magdalena Goetz, PhD, MD
Dr. Prof. Goetz discussed her research into turning scar-forming glia (from mice) into neurons. Currently, these transformed neurons are able to function with 90 percent efficiency and have been integrated with great precision.

KURZE LECTURE
David B. Argus, MD
Dr. Argus shared some fascinating commentary on aging, health and our ability to treat or control human disease. Per Argus, on average, it takes 14 years for 50 percent of doctors to accept new technology.

LOUISE EISENHARDT LECTURE
Amy Cuddy, PhD
Dr. Cuddy discussed the benefits of being present, which she defined as being attuned to and able to access and express your authentic best self from an outside as well as an internal perspective.
Distinguished Honorees

AANS CUSHING MEDAL
Robert F. Spetzler, MD, FAANS
Presented by Jacques J. Morcos, MD, FAANS

AANS CUSHING AWARD FOR
TECHNICAL EXCELLENCE AND INNOVATION
IN NEUROSURGERY
Fady T. Charbel, MD, FAANS
Presented by Jacques J. Morcos, MD, FAANS

AANS INTERNATIONAL LIFETIME
RECOGNITION AWARD
J. Andre Grotenhuis, MD, PhD, IFAANS
Presented by Christopher M. Loftus, MD, FAANS

AANS HUMANITARIAN AWARD
John Ragheb, MD, FAANS
Presented by Frederick A. Boop, MD, FAANS

AANS DISTINGUISHED SERVICE AWARD
Volker K. H. Sonntag, MD, FAANS(L)
Presented by Frederick A. Boop, MD, FAANS
Since 2006, the AANS Neurosurgical Top Gun Competition has provided a forum for residents and fellows to vie for prizes and bragging rights while demonstrating their skills at various surgical simulation stations. Each station’s top scorer earns a cash prize as does the participant with the best overall score.

**TOP HONORS—**
**2017 NEUROSURGICAL TOP GUN**
Timur Urakov, MD; University of Miami

**TRIGEMINAL RHIZOTOMY**
Oluwaseun O. Akinduro, MD; Mayo Clinic Jacksonville

**LUMBAR PEDICLE SCREW**
Michael McDowell, MD; University of Pittsburgh

**TRACTOGRAPHY-GUIDED SURGICAL PLANNING**
Ananth Vellimana, MD; Washington University

**MYRIAD MINIMALLY INVASIVE TUMOR RESECTION**
Juan Delgado-Fernandez, MD; La Princesa University Hospital
Irene Say, MD; Rutgers New Jersey Medical School
Liming Qiu, MD; National Neuroscience Institute

**TOP MEDICAL STUDENT**
Danielle DeBacker; Texas A&M College of Medicine

**OVERALL TOP RESIDENCY PROGRAM**
University of Texas Health Science Center at San Antonio; Grant Booher, MD, and Viabhav Patel, MD

**SUPPORTED BY:**
Immersive Touch, Inc.
Medtronic
NICO Corporation
Synaptive Medical
85TH AANS ANNUAL SCIENTIFIC MEETING

Commercial Supporters
The AANS wishes to thank the following companies for their support of the 2017 AANS Annual Scientific Meeting:

PLATINUM LEVEL
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The AANS wishes to thank the following companies for providing educational grants to support the 2017 AANS Annual Scientific Meeting:

Abbott
AOSpine North America
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Codman Neuro, part of the Johnson & Johnson family of companies

DePuy Synthes, part of the Johnson & Johnson family of companies
Ethicon
Leica Microsystems
Nevro
RosmanSearch, Inc.

The AANS wishes to thank the following companies for providing gifts in-kind to support the 2017 AANS Annual Scientific Meeting:

7D Surgical
Abbott
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Boston Scientific Neuromodulation
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Mazor Robotics
Medtronic
MicroVention, Inc.
Monteris Medical, Inc.
MRI Interventions, Inc.
Nico Corporation
NuVasive, Inc.
Penumbra Inc.
Raumedic, Inc.
Richard Wolf Medical Instruments Corporation
Stryker
Synaptive Medical
Zimmer Biomet
NEUROSURGERY AROUND THE WORLD

The AANS participated in the following international meetings this past year:

CAANS 2016—Continental Association of African Neurosurgical Societies, Cape Town, South Africa
EANS 2016—European Association of Neurosurgical Societies, Athens, Greece
CLAN 2016—Congreso Latinoamericano de Neurocirugía, Cancún, México

To further enhance the sharing of ideas across international neurosurgery, the AANS introduced two new programs to better collaborate with the international world of neurosurgery: the AANS Ambassador and the Global Speakers Bureau programs.

The AANS Ambassadors are leaders in the field and serve as liaisons to the different continental societies. The current ambassadors include:

Ossama Al-Mefty, MD, FAANS — AASNS Ambassador
Edward R. Laws Jr., MD, FAANS(L) — CAANS Ambassador
Robert F. Spetzler, MD, FAANS — EANS Ambassador
Roberto C. Heros, MD, FAANS(L) — Federación Latinoamericana de Sociedades de Neurocirugía (FLANC) Ambassador

The Global Speakers Bureau is a wide collection of neurosurgeons in different subspecialties who stand ready to represent their subspecialty abroad. These two initiatives will bring increased continuity to the AANS International Programs.

Prior to the 2017 AANS Annual Scientific Meeting, the AANS presented the Spetzler Symposium, which featured more than 75 neurosurgical masters from 22 countries. The International Symposium got the week off to a great start. Over the course of two days, 65 speakers from 26 countries shared their expertise in six subspecialties: stereotactic and functional, pediatric, neurotrauma, spine, cerebrovascular and tumor.
Continuing in AANS tradition, leaders from world organizations were hosted at the 85th AANS Annual Scientific Meeting in Los Angeles. Representing their organizations were:

- Basant K. Misra, MD, AASNS
- Abderrahmane Sidi Said, MD, CAANS
- J. André Grotenhuis, MD, PhD, IFAANS, EANS
- Jose Marcus Rotta, MD, FLANC
- Yong-Kwang Tu, MD, PhD, World Federation of Neurosurgical Societies (WFNS)
- Franco Servadei, MD, WFNS
- Walter D. Johnson, MD, FAANS(L), World Health Organization (WHO)

More than 20 percent of attendees at the 2017 AANS Annual Scientific Meeting joined in from beyond North America, which was one of the biggest international turnouts in recent years.

J. André Grotenhuis from Nijmegen, Netherlands, was honored with the AANS International Lifetime Recognition Award, for working to improve the quality of neurosurgical education throughout the world. The AANS Board of Directors wished to honor his many years of dedication to the field of neurosurgery and his willingness to collaborate.

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 85th AANS Annual Scientific Meeting. In 2017, this honor went to Laura Salgado-López, MD, from Barcelona, Spain, for her abstract, *A Pilot Study of Deep Brain Stimulation in Treatment Resistant Schizophrenia*.

**AANS INTERNATIONAL TRAVEL SCHOLARSHIP**

This scholarship provides $2,000 to support the attendance of a neurosurgeon from a developing country to the 85th AANS Annual Scientific Meeting. The 2017 recipient was Edgar M. Carrasco, MD, IFAANS, from Santa Cruz de la Sierra, Bolivia, for his abstract, *Minimally expensive Neurosurgery: State of the art at the public hospital of a developing country*.

The AANS also provides the International Visiting Surgeon Fellowship for neurosurgeons in developing countries to travel to North America for educational experiences. The 2017 recipients were Lakshmi Prasad Govindaraju, MBBS, MCh, from Manipal, India, who carried out his fellowship at the University of California, San Diego, under the guidance of Michael Lee Levy, MD, PhD, FAANS, and Gyang Markus Bot, BM, BCh, from Jos, Nigeria. Dr. Bot visited the University of California, San Francisco, and worked under the observation of Michael T. Lawton, MD, FAANS.
NEUROSURGERY MAKES SIGNIFICANT PROGRESS ADVANCING HEALTH POLICY AGENDA

AANS/CNS WASHINGTON COMMITTEE MISSION STATEMENT

Through advocacy, policy development and public relations, the AANS/CNS Washington Committee and Washington Office have played a fundamental role in advancing key health care initiatives, including advocating for adequate reimbursement, pushing for medical liability reform, streamlining quality improvement reporting requirements and providing neurosurgeons 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, neurosurgery frequently interacts with members of Congress, the Centers for Medicare & Medicaid Services (CMS), the Food and Drug Administration (FDA), third party payors and state and national medical associations. As a result of these interactions, organized neurosurgery has achieved a variety of advocacy successes.

FIGHTING FOR FAIR REIMBURSEMENT

The Washington Office has been on the front lines helping to guide the Medicare Access and CHIP Reauthorization Act (MACRA) through the implementation process to ensure that CMS develops the new Medicare physician payment system as directed and intended by Congress. Mandated by MACRA, the Medicare Quality Payment Program (QPP) replaces the former sustainable growth rate (SGR) payment system, under which physicians had faced nearly 14 years of significant Medicare pay cuts. Passage of MACRA prevented Medicare cuts of nearly $100,000 for many neurosurgeons, including those related to the SGR, quality programs and preventing the elimination of 10- and 90-day global surgery codes. The new payment system also consolidates Medicare’s separate quality-related programs — the Physician Quality Reporting System (PQRS), Electronic Health Records (EHR) Incentive Program and Value-Based Payment Modifier (VM) — and provides a new framework for rewarding the delivery of quality patient care.
As a leading member of the AMA MACRA Task Force, Washington Office staff worked to seek significant improvements in the QPP’s initial regulations. As a result of these efforts, more neurosurgeons (approximately 1,200) will be exempt from the program’s mandates. Additionally, CMS finally recognized that physician readiness to implement the new QPP would vary, and, therefore, adopted a “pick-your-pace” program for participating in a transition period, which would allow most physicians to avoid penalties, and for some to earn modest bonus payments. Finally, heeding the calls of organized neurosurgery, CMS reduced the QPP reporting burden. More information about the program is available at www.aans.org/MACRA.

The AANS also vigorously opposed a sweeping mandate proposed by CMS that would have required all surgeons to use an entirely new set of “G-codes” to document the type, level and number of every pre- and postoperative visit furnished during the global surgery period for every surgical procedure — rather than a representative sample, as directed by Congress in the MACRA legislation. Under the CMS proposal, all surgeons would have been required to report on each 10-minute increment of services provided. To combat this onerous mandate, the AANS launched an extensive and successful advocacy campaign. CMS released the final 2017 Medicare Physician Fee Schedule, and it represented a vast improvement over the initial proposal, limiting the requirement to large practices in nine states and the reporting of postoperative visits to a single code for each visit.

Finally, the AANS continues to aggressively challenge third party payor coverage policies, which limit reimbursement for many common neurosurgical procedures. The AANS/CNS Coding and Reimbursement Committee (CRC), along with representatives from the AANS/CNS National Quality Council (NQC), the AANS/CNS 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 recommendations on a variety of proposed coverage policies from Medicare and other payors. These comments involved topics such as deep brain stimulation (DBS), intraoperative MRI-guided focused ultrasound, nerve monitoring, spine arthroplasty, treatment of sacroiliac joint pain and use of spine allograft.

“Quality neurosurgical care is essential to the health and well-being of society. As the voice of neurosurgery before legislative, regulatory and other health care stakeholders, the AANS/CNS Washington Committee exists to advocate for our specialty and patients.” AANS/CNS Washington Committee Mission Statement
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. To this end, Secretary of the U.S. Department of Health and Human Services (HHS), Thomas E. Price, MD, has launched physician regulatory relief initiative, the goal of which is to modify or remove federal regulations that are interfering with the practice of medicine and placing unnecessary barriers between patients and their physicians. Leading a physician regulatory relief coalition, Washington Committee chair Ann R. Stroink, MD, FAANS, and Washington Office staff have had the opportunity to personally make the case directly to Secretary Price and CMS administrator Seema Verma. Thus far, as a result of these efforts, HHS has proposed relief from Medicare quality program penalties, exempted more physicians from the burdens of QPP and is revisiting the rules for Medicare’s mandatory appropriate use criteria (AUC) program for physicians ordering advanced diagnostic imaging. Other issues under active consideration by HHS include achieving EHR interoperability, minimizing the burdens of EHR meaningful use, revising evaluation and management (E&M) code documentation requirements and modifying prior authorization rules.

REFORMING THE REFORM

While the Affordable Care Act (ACA) is the law of the land, the Washington Office has not ceased in advocating for changes to this landmark health care reform law. Abolishing the Independent Payment Advisory Board (IPAB) remains a top priority. 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 bipartisan legislation to repeal the Independent Payment Advisory Board (IPAB) introduced in the House and Senate, including the “Protection Seniors’ Access to Medicare Act” (H.R. 849/S. 251/S. 260). Efforts to gain co-sponsors for these bills included a Congressional briefing, at which AANS president Alex B. Valadka, MD, FAANS, represented the physician point of view. Featured on C-SPAN, Dr. Valadka noted that the IPAB is one of the most insidious elements of the ACA and significant Medicare cuts from IPAB threaten seniors’ timely access to vital health care services. As a result of these advocacy efforts, for the first time since its inception, a bipartisan, bicameral majority of members of Congress support repealing this blunt, cost-containment tool.

While health care reform faces tough headwinds, the Washington Committee continues to press for meaningful improvements. The AANS strongly supports improving the nation’s health care system, including expanding access to affordable health insurance coverage for every American, enhancing patients’ choice of insurance plans and providers and maintaining reforms that redress a number of inexcusable insurance practices — including high-deductibles, narrow provider networks and prior authorization requirements.

Given America’s long tradition of excellence and innovation in patient care and because neurosurgeons have been on the cutting edge of these advancements, the AANS continues
to advocate for the repeal of the medical device excise tax. While temporarily suspended for two years, efforts to permanently repeal this ACA-mandated tax continue. Working with its advocacy partners, legislation to repeal the tax was again introduced in Congress. S.108, the “Medical Device Access and Innovation Protection Act” and H.R. 184, the “Protect Medical Innovation Act” continue to gain momentum.

MEDICAL LIABILITY REFORM
As the physician 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 national medical liability reform. Through these efforts, the AANS successfully advocated for the passage of the “Protecting Access to Care Act” (H.R. 1215) by the U.S. House of Representatives. Modeled after proven state reforms that have improved the medical liability climate, the legislation would, among other things, cap non-economic damages at $250,000 and establish standards for expert witnesses. Additionally, the U.S. House passed the “Sports Medicine Licensure Clarity Act of 2017” (S. 808/H.R. 302), which provides protections for team doctors who provide medical services.

Additional bills have been introduced, including “The Health Care Safety Net Enhancement Act of 2017” (S. 527/H.R. 548) and the “Good Samaritan Health Professionals Act of 2017” (S. 781/H.R. 1876). The former would provide crucial medical liability protections to physicians providing EMTALA-related care, while the latter would ensure that health professionals who want to provide voluntary care in response to a federally declared disaster can do so without worries about potential liability.

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 continued advocacy, 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). The “Resident Physician Shortage Reduction Act of 2017” (H.R. 2267/S. 1301) would expand Medicare funding for an additional 15,000 residency training slots over a five-year period.
NEUROSURGERY ADVOCATES FOR TRAUMA CARE

Working to improve the nation’s trauma and emergency care systems, the AANS has been a founding partner in efforts to establish and promote membership in the Congressional Pediatric Trauma Caucus. In furtherance of this goal, AANS president-elect Shelly D. Timmons, MD, PhD, FAANS, represented the AANS at a Congressional briefing convened by caucus co-chairs Reps. Richard Hudson (R-N.C.) and G.K. Butterfield (D-N.C.). The event highlighted the challenges facing pediatric trauma patients and the need to find bipartisan solutions to ensure adequate trauma care for children.

As part of this overall effort, the Government Accountability Office (GAO) was tasked with examining various issues related to pediatric trauma. Leaders from the pediatric neurosurgery community worked with the Washington Committee and Washington Office staff to meet with, and provide input to, the GAO. The resulting report, titled “Availability, Outcomes, and Federal Support Related to Pediatric Trauma Care,” will serve as the basis for future efforts to improve pediatric trauma systems.

Additionally, due to the influence of organized neurosurgery, the “Military Injury Surgical Systems Integrated Operationally Nationwide (MISSION) to Achieve Zero Preventable Deaths Act of 2017” (S. 1022/H.R. 880) was introduced in both the House and Senate. This legislation would assist U.S. military health care providers in maintaining a state of readiness by embedding military trauma teams and providers in civilian trauma centers.

NEUROSURGERYPAC/GRASSROOTS

An essential arrow in the AANS advocacy quiver is a political action committee (PAC). Established in August 2005, NeurosurgeryPAC is a nonpartisan political action committee which supports candidates for federal office who support organized neurosurgery’s advocacy goals. During fiscal year 2017, hundreds of neurosurgeons donated to NeurosurgeryPAC, contributing $251,368 to help augment AANS advocacy efforts. Beyond political dollars, however, it is people that make a difference in Washington, D.C., and the AANS actively engaged its members in the political process through grassroots activities. Whether in person or through the AANS 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 such as the Alliance of Specialty Medicine Annual Legislative Conference. Participation by neurosurgeons was critical to helping the AANS move our legislative and regulatory agenda forward.
COMMUNICATIONS OUTREACH

Beyond its direct lobbying and grassroots advocacy, 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 155 traditional media hits reaching an audience of 13.6 million.

In addition to traditional media, the Washington Office’s digital media platforms continue to see a significant expansion and have garnered over 278 million individual impressions. Furthermore, these media platforms have amassed a subscription audience of 130,000. By using these social media platforms, the Washington Committee 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 the AANS offers insights and perspective on contemporary health issues as they relate to organized neurosurgery.

- An [@Neurosurgery](#) Twitter feed that is used to gain greater visibility for neurosurgery’s advocacy efforts. Neurosurgery’s 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.

- Our [YouTube](#) channel 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](#), [Instagram](#), [LinkedIn](#), [Tumblr](#) and [Google+](#) sites that help drive health policy influencers to information on Neurosurgery Blog and the Twitter feed, while also spotlighting AANS news-making successes and initiatives.

Visit the blog and subscribe to it; read the monthly e-newsletter, **Neurosurgeons Taking Action**; and connect with the Washington Office on its various social media platforms. Things happen fast in the federal city, and one way to keep up with the many health-policy activities happening in the nation’s capital and beyond the Beltway is through these Washington Committee communications channels.
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NEUROSURGERY PAC

Thanks to all the FY 2017 donors to NeurosurgeryPAC. Contributions helped support candidates for federal office who support organized neurosurgery’s advocacy goals — providing a critical voice for neurosurgeons and their patients on Capitol Hill. During the fiscal year, neurosurgery collectively contributed $251,368 to its PAC, which helped augment AANS advocacy efforts.

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THE JOURNAL OF NEUROSURGERY

The Journal of Neurosurgery Publishing Group (JNSPG) continues to publish 50 issues per year (36 print and 12 electronic; two video supplements). In 2016, the JNS received 5,213 submissions for all four journals and the video supplements. The manuscript details are outlined later in this report.

I should like to begin by thanking William T. Couldwell, MD, PhD, FAANS, (editor); Jason P. Sheehan, MD, PhD, FAANS; and Aaron A. Cohen-Gadol, MD, FAANS, (associate editors) for their efforts in making Neurosurgical Focus as good as it can be. It has been most impressive to see how they have been innovating with the online and video issues of the journal.

I would like to recognize these outstanding chairs who have performed so effectively during this past year:

Jeff Elias, Emad N. Eskandar, MD, FAANS; and Brian L. Hoh, MD, FAHA; for JNS

Praveen V. Mummaneni, MD, FAANS; Langston T. Holly, MD, FAANS; and Lawrence G. Lenke, MD, for Journal of Neurosurgery: Spine

Ann-Christine Duhaime, MD, FAANS, and Jeffrey G. Ojemann, MD, FAANS, for Journal of Neurosurgery: Pediatrics

Below are some highlights of what we accomplished during the year:

1. We have managed and processed 5,213 manuscripts, an all-time new record for the JNS. The increased volume of submissions has understandably led to more work for the office staff and for the Editorial Board.

2. Doug Kondziolka, MD, FAANS, and I published an editorial on "A concerted effort to publish the best studies in neurosurgery." We will remain strict and vigilant with the acceptances for all journals so as to maintain and improve the impact factors and citations that we have received.

3. Commentaries on "levels of evidence" on select journal articles has continued through the efforts of Michael Glantz, Penn State University.
4. We have cleared the “backlog” for journal articles, an initiative that required extra effort by the office staff and support from the AANS.

5. We have codified and continued to add to linkages between The Rhoton Collection®, The Neurosurgical Atlas and the JNS.

6. For global outreach, the top articles in the JNS published on the topic of neurotrauma were printed for the Ukrainian Association of Neurosurgeons in their native language; ongoing efforts are doing the same with the Chinese Neurosurgical Society.

7. In preparation for the 2017 AANS Annual Meeting, we published a “Best of” collection from the JNSPG, and these include some of the most frequently accessed and viewed articles from 2016.

8. We have dramatically increased our social media presence with over 25,000 Facebook followers and the greatest number of Twitter feeds of any neurosurgical journal. This effort is thanks to the hard work of Naif Alotaibi, MD, a resident in neurosurgery at the University of Toronto.

It remains a privilege and honor to lead the JNSPG in all of its formats and facets. It is especially so given the talent and dedication of the office staff in Charlottesville, Va., and the superb reviews of members of the Editorial Board.

James T. Rutka, MD, PhD, FAANS
Editor-in-chief
THE SPETZLER SYMPOSIUM

State-of-the-art in Cerebrovascular, Skull Base, Craniovertebral Junction and Brain Tumor Surgery—A Scientific Tribute and Global Celebration

When Robert Spetzler announced his retirement it was the perfect time to celebrate both his international fame and his service to the field of neurosurgery through a symposium that would serve as a scientific tribute to his legacy.

I contacted a large number of neurosurgeons and the response was overwhelming, with ultimately more than 75 national and international neurosurgical masters and leaders in the field contributing to the symposium.

The scientific level of the meeting was unprecedented. I have received numerous emails from the speakers and attendees stating unequivocally that this was “the best meeting that they had ever attended.” One practicing neurosurgeon told me that the Spetzler Symposium was by far the best meeting in his entire 35-year career.

Jacques J. Morcos, MD, FAANS

The AANS wishes to thank the following companies for their generous support of The Spetzler Symposium.

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The AANS wishes to thank the following companies for providing educational grants to support The Spetzler Symposium: State-of-the-art in Cerebrovascular, Skull Base, Craniovertebral Junction and Brain Tumor Surgery –A Scientific Tribute and Global Celebration:

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EDUCATION OVERVIEW

Through its committees, the AANS continues to evaluate its educational offerings to meet evolving educational gaps in neurosurgery. Are educational gaps being filled efficiently and thoroughly? Do the available courses meet defined needs? Are there unmet gaps that, in being filled, would increase patient care and positive outcomes covered by AANS offerings?

In addition to the regular slate of courses offered by the AANS, a new course was piloted this year: *Advanced Practice Provider Spine Techniques Clinic*, which was created to fill an educational gap for nurse practitioners (NPs) and physician assistants (PAs).

**What changes will you make in your practice as a result of attending this workshop?**

“I feel my OR skills improved as a result.”

“More surgical confidence and improved technique.”

“With the knowledge and skills I have gained, I have a better understanding of the procedures we offer. This will improve patient education and outcomes.”

“This will greatly affect how I treat both preoperative consultation and postoperative management.”

**ADVANCED PRACTICE PROVIDER SPINE TECHNIQUES CLINIC**

This one-and-a-half day clinical course provided neurosurgical NPs and PAs from subspecialized spine practices the opportunity to learn common spine techniques required of the experienced advanced practice provider (APP). Clinical lectures and a full-day cadaver lab delivered an advanced review of spine anatomy, hands-on teaching and surgical intervention.

**June 2–3, 2017 | Burr Ridge, IL**

**Course Director:** Twyila Lay, NP, MS

**Industry Supporters:** DePuy Synthes Spine, Medtronic

**Number of APPs Educated:** 25

**AANS EDUCATION BY THE NUMBERS**

9 Live Courses

7 AANS/NREF Resident/Fellow Education Courses

16 Jointly Provided Continuing Medical Education (CME) Programs

3 SNS/AANS Junior Resident Courses: Introduction to Operating Room and Leadership

More than **100** Total Educational Activities in FY17, Including CME Activities, Live Courses, Online Courses, Webinars and Enduring Materials
EXPANDING AND ENHANCING THE RESIDENCY EXPERIENCE

In the 2017 fiscal year, the AANS and NREF offered advanced neurosurgical training to 182 neurosurgical residents and fellows at no cost to the residents or their programs.

Fellows Course in Neuroendovascular Techniques
In Collaboration With the Society of Neurornterventional Surgery (SNIS) and the Society of Vascular and Interventional Neurology (SVIN)
Oct. 7-9, 2016 | 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: 26

Endovascular and Vascular Techniques for Residents
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; Penumbra; Leica Microsystems; Carl Zeiss Meditec, Inc.; Synaptive; Aesculap, Inc. USA; Zimmer Biomet; Mizuho America, Inc.; and Methodist Hospital, Memphis
Number of Residents Educated: 26

Stereotactic and Functional Hands-On Neurosurgery Workshop for Residents, Fellows and Attendings
Nov. 3-6, 2016 | Aurora, Colo.
Course Director: Aviva Abosch, MD, PhD, FAANS
Industry Supporters: Alpha Omega; Brainlab; FHC; Integra; MedTech; Medtronic; Medtronic Advanced Energy/Medtronic Restorative Therapies; Monteris Medical; MRI Interventions; Neuropace; St. Jude Medical; Elekta; Insightech; PMT; LivaNova; and Cosman Medical
Number of Residents and Fellows Educated: 11 (31 total attendees including attendings)
Skull Base Techniques for Residents
Nov. 4-6, 2016 | Memphis, Tenn.
Course Co-directors: Jon H. Robertson, MD, FAANS; and L. Madison Michael II, MD, FAANS
Industry Supporters: Leica Microsystems; Carl Zeiss Meditec, Inc.; Synaptive; Karl Storz; Aesculap Inc. USA; Codman Neuro; DePuy Synthes; Zimmer Biomet; Symmetry Surgical; Armamentarium; and Methodist Hospital, Memphis
Number of Residents Educated: 20

Fundamentals in Spinal Surgery for Residents
Nov. 10-12, 2016 | Houston, Texas
Course Co-directors: John Joseph Knightly, MD, FAANS; and Praveen V. Mummaneni, MD, FAANS
Industry Supporters: DePuy Synthes Spine; Medtronic; NuVasive; Globus Medical; Stryker Spine; Providence; SI-Bone; and Siemens
Number of Residents Educated: 37
**Spinal Deformity for Residents**  
March 31-April 2, 2017 | Baltimore  
Course Co-directors: Robert F. Heary, MD, FAANS; and Justin S. Smith, MD, FAANS  
Industry Supporters: DePuySynthes Spine; K2M; Zimmer Biomet; and Globus Medical  
Number of Residents Educated: 32

**Stereotactic Radiosurgery Course for Neurosurgery and Radiation Oncology Residents**  
In Collaboration With the American Society for Radiation Oncology (ASTRO)  
June 9-11, 2017 | Pittsburgh  
Course Co-directors: Jason P. Sheehan, MD, PhD, FAANS; and John Suh, MD  
Industry Supporters: Elekta; Varian; Brainlab; Novocure; Accuray; Monteris Medical; and Medtronic  
Number of Residents Educated: 30
THE VALUE OF JOINT PROVIDERSHIP

Randy Lynn Jensen, MD, PhD, FAANS
Vice Chair of Membership Committee and Chair of Joint Providership Council

“I think Joint Providership from the AANS is one of our most important member benefits,” said Randy Lynn Jensen, MD, PhD, FAANS, who has been part of the committee for the last ten years, the most recent three serving as the chair.

“Finding an organization that will provide accreditation can be difficult and expensive. I have heard of fees that exceed $10,000. Since I have been chair, we have really worked hard to share our knowledge of how to create better, more valuable meetings and to provide that experience as support to those who contract with us for joint providership. We now have formalized, online tools that help guide the creation of educationally-valuable CME experiences, resulting in a better experience for attendees and more stringent adherence to the Accreditation Council of Continued Medical Education (ACCME) compliance requirements.

“In the past year the AANS supplied joint providership for 16 or 17 neurosurgical meetings, making it easier for those who attend these meetings to keep their CME in good standing while also receiving a quality educational product.

“In my 10 years with the committee, I have noticed that ACCME requirements have gotten much more stringent; a few years ago, you could simply plan a meeting and get CME. Today, the meeting has to demonstrate organization and planning that includes identifying knowledge gaps and building the meeting around plans to fill specific audience needs. Additionally, the committee itself now re-evaluates at the end of each meeting we sponsor so that we can provide feedback to meeting planners: Next year’s planning starts with a post-mortem of the current year’s conference. This cycle has driven up quality of educational materials like never before, thanks to enhanced focus on both knowledge gaps and the best ways to fill them.”
When asked why he has chosen this particular area of the AANS on which to focus his talents and attention, Dr. Jensen mentioned that his department has put on a meeting for the past 40 years, and for the last 14 he has been in charge of it: He has first-hand experience with the joint sponsorship process and his own motivation to be sure that it is done in the best way possible. His participation in the committee allowed him to help improve the process for everyone and, he added, “It has been a joy to serve in this capacity.”

Dr. Jensen spoke highly of the AANS staff who head up the joint providership and educational activities, with whom he works on a regular basis. “The educational staff at the AANS is top notch – I’d say best in the country. Our members should be proud of and recognize the bargain that they receive in the materials and educational opportunities created by this staff. It is my pleasure to work alongside them, delivering this essential benefit to our members.”
The 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. The NPA serves as a resource for physicians and other clinicians of various specialties who want to develop multicenter clinical trials, registries for research and quality improvement and post-marketing surveillance of medical devices. Current initiatives include a joint organization registry for stereotactic radiosurgery, an industry-sponsored study of the effectiveness of fusion for Grade I Spondylolisthesis and the well-established Quality Outcomes Database (QOD) projects in spine and cerebrovascular surgery.

The NPA also is partnering with other organizations on various projects including 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 DBS registry and the SNIS to create a post-marketing surveillance registry for clot retrieval devices used in the care of acute, ischemic stroke patients in response to a FDA request.

NPA also works closely with other neurosurgical organizations, including the American Board of Neurological Surgery (ABNS), CNS, SNS and the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves — all of whom have representatives on NPA’s Board of Directors. 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
2016-2017 NPA Chair
NPA’S MISSION

Organized neurosurgery believes that prospective, systematic tracking of practice patterns and patient outcomes will allow surgeons and other providers 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, the SNS and the ABNS, created the NPA in 2008.

NPA coordinates a variety of national projects involving the acquisition, analysis and reporting of clinical data from health care practices. NPA is designed to meet the quality improvement and research needs of physicians and allied health care professionals, national organizations, health care plans, the biomedical industry and government agencies. Towards this end, NPA gathers, analyzes and publishes data on the science of patient care via its audited clinical data registries. 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.

NPA registries cover a wide array of neurosurgical issues including care for spine, cervical and deformity patients as well as various procedures including stereotactic radiosurgery. The QOD is the largest spine registry in the U.S. with over 100 participating practices and 50,000 patients. Efforts are underway to develop additional registries for patients with tumors and Parkinson’s disease.

GOVERNANCE STRUCTURE

NPA’s board of directors is comprised of representatives from the CNS, SNS, ABNS, AANS/CNS Joint Section on Spine, JNSPG and NREF. The Board is responsible for setting the strategic direction of the NPA.

MAJOR INITIATIVES AND ALLIANCES

The NPA focuses its clinical registries on promoting the quality of patient care and providing clinicians with the means to assess risk-adjusted measures of the value and durability of treatment responses. The NPA’s registry programs assist in the understanding of patient perspectives on clinical outcomes and patient experiences of care by providing the ability to compare the relative effectiveness of various therapeutic interventions.
QOD

To meet the growing need for tools to measure and promote quality care, NPA collaborated with several national stakeholders six years ago to create an unprecedented program: the National Neurosurgery Quality and Outcomes Database (N2QOD). Since then, N2QOD has expanded beyond the boundaries of its name and is 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 this centralized, nationally-coordinated quality program.

The QOD-Lumbar Spine registry was launched in February 2012. In 2017, the QOD-Lumbar Spine registry had over 100 contracted centers across the country with more than 50,000 enrolled patients. The QOD-Cervical Spine registry was launched in March 2013 with 70 active centers and nearly 15,000 patients enrolled in 2017. In December 2014, the QOD expanded its spine program to include lumbar deformity cases, with 50 centers currently enrolling deformity cases. The QOD-Neurovascular registry is active in 19 centers with over 2,000 patient cases accrued.

QOD CONTRIBUTIONS TO ACADEMIC PRODUCTIVITY

The publications produced from QOD registry data support the creation and dissemination of evidence-based knowledge about developments in operative techniques and patient care. They represent real-world treatments, assist in the understanding of diseases and present the safety and effectiveness of various treatments. These manuscripts represent QOD’s contributions to the fields of neuro and orthopedic surgery and can be found here.

QOD PARTICIPATION

QOD has experienced steady growth over six years, with participating centers located in 38 states across the U.S. Nineteen hospital locations were added in FY 2017, reflecting a 9 percent increase in surgical locations and a 16 percent increase in surgeon participants.
QOD PARTICIPATING CENTERS

The NPA wishes to thank the following institutions for their participation in the QOD registries:

Albany Medical Center
Allegheny Health Network
Atlantic Neurosurgical Specialists
Augusta Back Neuroscience
Baptist Hospital of Miami
Barrow Neurological Associates
BayCare Clinic
Brain & Spine Center
Brain & Spine Surgeons of New York
Butler Health System
Carle Spine Institute
Carolina Neurosurgery & Spine Associates
Catholic Health System/Kenmore Mercy Hospital
Catholic Health System/Mercy Hospital of Buffalo
Catholic Health System/Sisters of Charity Hospital
Center for Neurosciences
Centra Health
CNOS PhyCare
Colorado Springs Neurological Associates
Columbia University
Community Hospital Indiana
Duke University
Florida Hospital
Geisinger Health System
Goodman Campbell Brain & Spine
Henry Ford Health System
HonorHealth Scottsdale Osborn Medical Center
IGEA Brain & Spine
Intermountain Healthcare/Dixie Regional Medical Center
Intermountain Healthcare/Intermountain Medical Center
Intermountain Healthcare/McKay-Dee Hospital
Intermountain Healthcare/The Orthopedic Specialty Hospital
Intermountain Healthcare/Utah Valley Hospital
Jackson Memorial Hospital
Johns Hopkins University
Louisiana State University at Shreveport
Maine Medical Partners
Mission Hospital
Mount Sinai Hospital
Neurological Associates
Neuroscience Group
Neuroscience Specialists
NeuroSpine Center of Wisconsin
Neurosurgical Associates of Virginia
North Jersey Brain & Spine/Hackensack
NorthBay Medical Center
NorthShore Long Island Jewish/Northwell
NorthShore University Health System Evanston

Norton Leatherman Spine Center
Oklahoma Spine & Brain Institute
Orlando Health/UF Health Neurosurgery
OSF Healthcare Univ of Illinois Peoria
Penn State Milton S. Hershey Medical Center
Phoenix Spine Surgery Center
Piedmont Hospital
Poudre Valley Hospital
Regional West Physicians
Research Medical Center
Roper St. Francis Healthcare
Saint John’s Clinic
Saint Luke’s Hospital of Kansas City
Saint Luke’s Physician Group
Self Regional Healthcare
Semmes-Murphey Neurological Institute
Southern Illinois University School of Medicine
Springfield Neurological & Spine Institute
Swedish Neurosurgical Institute
Tallahassee Memorial Healthcare
Tufts Medical Center
Tyler Neurological
University at Buffalo Neurosurgery
University Hospitals Case Medical Center
University of Alabama at Birmingham
University of Arkansas
University of California at Los Angeles
University of California at San Francisco
University of Florida
University of Kansas Medical Center
University of Louisville
University of Miami
University of Michigan
University of Minnesota Physicians
University of New Mexico
University of North Carolina
University of Oklahoma
University of South Florida - Tampa
University of Tennessee Medical Center
University of Texas Southwestern
University of Utah
University of Virginia
Valley Hospital New Jersey
Vanderbilt University
Virginia Commonwealth University
Wake Forest Baptist Medical Center
Weill Cornell New York Presbyterian
Wellmont Bristol Regional Medical Center
Wellmont Holston Valley Medical Center
Winchester Medical Center
QOD’S PATIENT-SPECIFIC PREDICTIVE CALCULATOR
QOD was designed with a longitudinal structure and includes 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 FY 2018. 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 benefited from a particular treatment. For example, initial QOD results showed that while 85 percent of patients benefited 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 Dr. Harbaugh.

NPA WELCOMES ITS FIRST HEALTH SYSTEM TO THE QOD
Intermountain Healthcare (IHC) signed on as NPA’s first health system. IHC is participating in all of the current QOD modules: Lumbar, Deformity, Cervical and Neurovascular. Robert E. Harbaugh, MD, FAANS, chair of the NPA, stated, “We realized we needed a data-reporting solution not only for individual practices but also for hospitals and hospital systems. The addition of high performing health systems will add to the value of the registry and to the well-being of our patients.”

“Intermountain Healthcare has an international reputation for safe, cost-effective delivery of health care and quality improvement processes. In an effort to further elevate the level of spine and cranial surgery and procedures performed at each of our Intermountain Healthcare hospitals, our system-wide neuroscience clinical program has partnered with NPA’s QOD. Our system-wide goal, when it comes to spine and cranial patient outcomes, is real-time, standardized benchmarking: locally within our own health care system as well as regionally and nationally,” said Ben Fox, MD, medical director at Intermountain Healthcare.

As Peter Maughan, MD, medical director, Intermountain Medical Center Neurosciences Institute, added, “Participating in QOD is another step in our commitment to providing quality care that is both efficient and cost effective.”
SILKY CHOTAI, MD

QOD CLINICAL FELLOW JOINS NEUROSURGERY RESIDENCY AT VANDERBILT UNIVERSITY MEDICAL CENTER

Since August 2014, Silky Chotai, MD, has been an integral part of the QOD project as a clinical fellow at the Vanderbilt University Medical Center’s QOD Coordinating Center. QOD directors Anthony L. Asher, MD, and Mohamad Bydon, MD, are joined by the NPA board of directors and staff in congratulating Chotai as she joins the neurosurgery residency at Vanderbilt University Medical Center.

“Chotai has been a critically important member of the QOD senior scientific team, which created and now administers the nation’s largest spine registry program,” said Dr. Asher. “Her contributions to the QOD have ranged from the development of predictive models and important manuscripts, to the creation of essential registry infrastructure. It is safe to say that this unprecedented effort would not have achieved its present level of success without her efforts.”

Clinton J. Devin, MD, associate professor of Orthopaedic Surgery and Neurosurgery at the Vanderbilt Spine Center added, “She hit the ground running and has been one of the most talented and driven individuals I have had the privilege of working with. She has been the go-to clinical expert for site coordinators, as well as the organizer for the analytics and paper preparation for important QOD efforts.”

Chotai received her medical degree from the Medical College in Baroda, India, and obtained basic neurosurgical training in China and South Korea. She pursued a micro-neurosurgical skull base research fellowship at The Ohio State University, followed by a minimally invasive neurosurgery fellowship at Weill Cornell Medical College in New York. She joined the Vanderbilt Spine Center as a post-doctoral spine fellow while serving the QOD program. Chotai has over 50 articles in high impact peer-reviewed neurosurgical journals, a number of abstracts, several book chapters and awards to her credit. She also serves as the Editorial Board member and as a reviewer for multiple national and international journals.

“Silky Chotai is an excellent clinical scientist,” commented Dr. Bydon. “The QOD registry would not be where it is today without her participation and effort.”
QOD-RELATED STUDY
Institute for Healthcare Improvement (IHI) Project

Registries increasingly serve as an essential resource for providers and clinical leaders seeking to understand performance and often stand as an underutilized resource when it comes to true quality improvement. Because QOD was designed with improvement in mind, in 2017 NPA laid the groundwork for national-level improvement work through a nine-month cooperative project made possible through a generous grant from the NREF.

Beginning in October 2016 and extending to June 2017, NPA and the IHI convened the Spine Surgery Learning Community (SSLC) as part of a nine-month cooperative project, “Driving Quality Improvement in Spine Surgery: Reducing 90-Day Readmissions and Length of Stay Following Elective Spine Surgery.” An examination of QOD data revealed patient- and site-level variation in several areas, including unplanned hospital readmissions and length of stay. These two areas serve as logical targets for collaborative improvement because they have strong links: Length of stay can serve as one marker of readmission risk. At the same time, learning in these two areas can drive further improvements in other related areas. The aims of the project were to develop, test and implement an approach to improving outcomes and reducing 90-day readmissions for spine surgery patients who underwent specific spine interventions, while applying a series of process improvement techniques to test and refine iterative changes as part of the first initiative to use QOD data for applied quality improvement.

In the initial research phase, the NPA surgeon leadership team, led by Anthony L. Asher, MD, FAANS, vice chair of the NPA and QOD director, and Mohamad Bydon, MD, QOD vice director, committed to a structured and focused quality improvement project using quality improvement methods and tools to test the theories of change produced from an initial research and development phase. From January to June, the SSLC tested different improvement efforts before and during hospitalization, at the time of discharge and after discharge using length of stay, readmissions and process variable records for more than 200 patients. The SSLC centers tested a subset of change ideas from a project driver diagram using multiple rapid-cycle testing, collected project-specific measures data and shared learning in a facilitated community environment.

The learning community phase of the project also provided an opportunity to study the potential of the QOD registry in providing relevant data to support long-term applied quality improvement. At the conclusion of the project, NPA will focus on sustaining existing changes among the participants, expanding promising practices to other QOD centers and reliably collecting real-time data for designated improvement measures. NPA’s facilitation and direction, in concert with QOD site leadership, is essential for the SSLC centers to sustain their early gains, plan for further dissemination and spread effective improvements. Building on NPA’s strong analytic support and its commitment to quality improvement and real-time data collection, learning can be translated into measurable outcome changes for patients. By creating a facilitated and collaborative learning community, QOD participants can relate to each other as a powerful “brain trust” of improvement partners.

QOD is also designated as a Qualified Clinical Data Registry (QCDR) by CMS, allowing for submission of PQRS data.
EFFECTIVENESS OF FUSION FOR GRADE I SPONDYLOLISTHESIS

The study, “Effectiveness of Grade I Spondylolisthesis”, was launched earlier this year to determine the optimal surgical approach (ventral vs. dorsal) for patients with primary diagnosis of spondylolisthesis undergoing 1 and 2-level decompression alone or decompression and fusion. The study takes a cohort of 13 QOD participating sites to examine their respective surgical approach in treating patients with spondylolisthesis. Data from July 1, 2014, to June 30, 2016, will be analyzed.

Specific aims include:
- A comparison of the effectiveness of decompression alone and decompression with fusion, using validated one- and two-year PROs data;
- A comparison of the effectiveness of surgery for 1-level spondylolisthesis with 2-level spondylolisthesis with stenosis; and
- An analysis of current state of U.S. spine surgical practice regarding grade I degenerative spondylolisthesis including the surgical parameters of blood loss and hospital length of stay.

Erica F. Bisson, MD, FAANS, serves as principal investigator along with additional leadership from Praveen V. Mummaneni, MD, FAANS, and Mohamad Bydon, MD.
THE SPINE QUALITY OUTCOMES DATABASE
Together with AAPM&R, the AANS and NPA have developed a multi-specialty, all-inclusive spine care registry to track surgical and non-surgical outcomes in patients: the Spine Quality Outcomes Database (SQOD). The registry focuses on therapeutic and other interventions for a wide array of diagnoses and symptom sets while demonstrating the quality and value of treatments. Physiatrists and neurosurgeons are natural partners in caring for patients suffering spine disorders throughout the continuum of care.

Through this registry, for the first time there will be a meaningful database with PROs that will allow us to understand which patients respond to medications, physical therapy and percutaneous treatments and also be able to identify patients that are best served by surgery.

“Having the opportunity to compare my observations with other experts in the field is validating and exciting,” says Michael Hatzakis Jr., MD, co-chair of the AAPM&R/AANS Joint Registry Steering Committee. “It allows each of us to put our knowledge and experience into an infrastructure so as to hopefully guide others toward what we feel is the most effective approach to spine care, and ultimately measure which patterns of intervention are most effective. I believe this project puts us on the map of medical specialties as one that truly cares and advocates for patients. Spine is just the beginning; once we develop an infrastructure, it can easily be applied to other areas, such as post-acute care, stroke, spinal cord injury, multiple sclerosis or pediatrics.”

SQOD PARTICIPATING CENTERS
The NPA wishes to thank the following institutions for their participation in the SQOD registry:

- Apex Physical Medicine & Rehabilitation
- Neurosurgery & Spine Associates
- Central Kentucky Spine Surgery, PLLC
- Carolina Neurosurgery & Spine Associates
- Christiana Spine Center
- Eastern Idaho Spine Sports and Rehab Center
- Mary Free Bed Spine Center
- Michigan Neurology Associates
- Mission Pain and Spine
- Mount Vernon Rehabilitation Medicine Associates
- Nevada Advanced Pain Specialists

- Nevada Rehab Institute
- Orthopedic Associates of Port Huron
- Paducah Physiatric Partners
- Pain Specialists of Cincinnati
- Rehab and Pain Clinics of South Texas
- Rehabilitation Options of Issaquah
- Riverbend Physical Medicine & Rehabilitation
- Spine & Sports Physiatrists
- Texas Pain Treatment Center
- Thumb Physiatry
- Twin Cities Pain Clinic
AANS/ASTRO STEREOTACTIC RADIOSURGERY REGISTRY

The NPA’s SRS registry represents collaboration between the AANS and ASTRO with initial corporate funding from Brainlab and Elekta. 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 arteriovenous malformations (AVMs).

“As SRS is performed in a multi-disciplinary fashion,” said Jason P. Sheehan, MD, PhD, FAANS, co-director of the SRS Registry program, describing the organizations’ working relationship. “The partnership between AANS and ASTRO makes a lot of sense. Working together, the organizations perform better science to improve quality and patient outcomes. Moreover, corporate partners truly 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.”

In the spring of 2017, the SRS Steering Committee conducted an extensive evaluation of the program to determine how best to proceed. The Steering Committee agreed to continue the program for at least three more years in order to capture further patient information and generate more meaningful results. In addition, the Steering Committee proposed to replace the registry’s existing clinical research organization effective Dec. 1, 2017. The NPA will provide general administration and project management going forward, and Brainlab will serve as the registry’s technology partner and continued corporate funder.

Over the next three years, NPA and Brainlab will jointly provide more comprehensive operational and site support. Since many sites are utilizing Brainlab’s Quentry system already, it is expected that this transition and migration to the Brainlab platform will provide SRS registry sites with more efficient and streamlined services. Brainlab continues to invest in the development of the SRS registry platform, focused on increased efficiency of data collection, organization and enhanced analytics. Additionally, Brainlab will provide training, technical support and dedicated registry site management and coordination.
SRS REGISTRY PARTICIPANTS

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

- Carolinas Medical Center
- Duke Cancer Center
- Huntsman Cancer Institute—University of Utah
- Jefferson Hospital for Neuroscience
- Norton Cancer Institute
- NYU Langone Medical Center
- Penn State Hershey Medical Center
- Ronald Reagan UCLA Medical Center
- Semmes-Murphey
- The Valley Hospital
- UF Health Cancer Center at Orlando Health
- University of Cincinnati, Mayfield Clinic
- University of Colorado Hospital and UCH
- Rocky Mountain Gamma Knife Center
- University of Rochester Medical Center
- University of Southern California in Los Angeles
- University of Virginia Heath System
- Vanderbilt University Medical Center
- William Beaumont Hospital
- Yale New Haven Health System

FDA POST-MARKET SURVEILLANCE PROJECT

NPA’s strengths include collaborating on projects with multiple organizations and achieving multiple goals through a shared vision. The FDA is in discussions with NPA and SNIS to establish a collaborative registry project that would provide post-market surveillance services to the FDA and industry. Established registries, such as those developed by NPA, provide the potential to enhance post-market device evaluation in a cost-effective and standardized manner.

RAD-PD PARKINSON’S DISEASE REGISTRY PROJECT

The NPA has been working with the Parkinson Study Group (PSG) to craft a proposal for the development of the Registry for Advancement of Deep Brain Stimulation Therapy in Parkinson’s Disease (RAD-PD). This would be a joint effort between neurosurgery and neurology, with NPA overseeing registry management.

The NPA will also provide technical platform management working with Neurotargeting, LLC. The primary aim of the registry is to facilitate the creation of a well-characterized patient cohort that has undergone longitudinal assessments, analysis of which will have the potential to answer clinical questions that are not feasible using standard randomized controlled trial methodology. Registry objectives include identifying the best practices surrounding DBS therapy, identifying the adverse effects (and their determinants) of DBS therapy and identifying the health economics and disparities related to DBS therapy in a contemporary setting.

On March 3, 2017, the RAD-PD proposal was presented to the Michael J. Fox Foundation and met with positive feedback. The proposal is now undergoing review by the PSG with a final project proposal due to the PSG in August 2017. It is anticipated that the registry project will start in the fourth quarter of 2017. This will be a joint effort between neurosurgery and neurology. The NPA will oversee registry management, and the Michael J. Fox Foundation will provide financial support.
NREF CHAIR’S MESSAGE

I am very pleased to report that the NREF has continued to grow, supported by the neurosurgical and corporate communities this year. When I accepted the role of NREF chair, I was hopeful about the potential of the giving culture of neurosurgery. Now, I am enthusiastically optimistic about what the future holds.

The NREF has more than doubled its assets, mainly due to the Sections’ support of the Honor Your Mentor (HYM) funds created since 2014. Working hand-in-hand with the Section representatives on the NREF Development Committee, the Sections have the opportunity to build their HYM Funds for specific purposes.

When NREF established the HYM Funds in 2014 to recognize those who have advanced neurosurgery, six funds — each with a specific purpose — were created with pledges from 37 donors totaling $177,195. By the close of 2015, there were 22 funds representing 257 donors and $1,182,225 in pledges. As of June 30, 2017, there are 31 HYM funds; with an additional eight funds currently being discussed. Pledges to HYM funds now total $3,670,931 from 695 donors.

This year, NREF recognized the first Andrew T. Parsa Research Fellowship sponsored by the NREF and the AANS/CNS Joint Section on Tumors. Funded by the proceeds of the Annual Charity Softball Tournament and Brainlab, this year’s award is a $50,000 research grant. Also, a $50,000 tumor research grant to Jamie Purzner, MD, of Stanford University for his project titled “Exploring the Epigenetic Regulation of Neuronal Differentiation to Differentiate Medulloblastoma Cells” is being funded by the private foundation of B*CURED, in partnership with NREF. These newly-formed relationships are just the first of what we hope will be many other partnerships to fund neurosurgical research.

The NREF continues to provide funding to NPA by securing over $380,000 in corporate funding from Medtronic and other industry leaders for the Effectiveness of Fusion for Grade I Spondylolisthesis Study, in addition to $80,000 for a joint study with the IHI, to develop, test and implement an approach to improving outcomes for spine surgery patients.
The NREF Research Grant and Young Clinician Investigator awardees are listed in a related article, and we are grateful for the ongoing support of The Bagan Family Foundation, the AANS, Medtronic and the AANS/CNS Joint Sections on Pain, Tumors, Trauma, Pediatric and Cerebrovascular Neurosurgery, as well as B*CURED.

The loss of Albert L. Rhoton Jr., MD, FAANS(L), last year reminded many of us of the extraordinary legacy he left with *The Rhoton Collection* and of his desire to allow this material to reach as many people as possible. The NREF Rhoton Fund was created to support *The Rhoton Collection*, neuroanatomical fellowships for medical students and new anatomical research. Your support is needed to continue to release additional video lectures that have yet to be curated for the collection as we honor his legacy.

Whether you support your subspecialty with a contribution to research, education, outcomes or greatest need, *The Rhoton Collection*, the prestigious Van Wagenen Fellowship or other areas of neurosurgery, we will continue to serve as good stewards of your support and improve patient care by funding the highest levels of education and research.

As Regis W. Haid Jr., MD, FAANS, takes the helm of the NREF at the start of FY 2018, I will continue to serve as the vice chair, and I do, as always, thank you for your ongoing support.

Sincerely,

Jon H. Robertson, MD, FAANS
NREF Chair
NEW AWARD FUNDED BY NEUROSURGEON PHILANTHROPIST

In a presentation held during the 2017 AANS Annual Scientific Meeting in Los Angeles, AANS president Frederick A. Boop, MD, FAANS, reflected on the impact of philanthropy as the investment of financial resources in research that will ultimately improve patient health care. He challenged the membership to support the next generation of neurosurgeons with a pledge to the NREF, stating that it was “an honor to be able to give back.”

A member who has heeded that call to give back is Arvind Ahuja, MD, FAANS.

Dr. Ahuja’s efforts to provide his patients with the highest level of care possible is demonstrated in his unyielding commitment to excellence in both his clinical practice and surgical skills and his dedication to advancing the field of neuroscience beyond his individual practice.

As a Platinum-level member of the foundation’s Cushing Circle of Giving, Dr. Ahuja shares its commitment to research into new treatment possibilities and the development of educational resources that train neurosurgeons throughout the country. The Cushing Circle of Giving acknowledges those who have made a lifetime giving pledge of $25,000 or more to the NREF in any one of dozens of funds with general, specific and global purposes. Briefly stated, this elite group of philanthropists celebrate the potential for a shared future of improved neurosurgical care.

In recognition of his contributions, the NREF extends its sincere thanks to Dr. Ahuja for his $125,000 contribution to fund the L. Nelson “Nick” Hopkins NREF Young Clinician Investigator Award. The award is jointly sponsored by Dr. Ahuja and the AANS/CNS Cerebrovascular Section.
In addition to his support for the NREF, Dr. Ahuja’s community involvement extends to the Kenosha Unified School District, Neighborhood House (Milwaukee), Gold in September (Delafeld, Wisc.), Hunger Task Force, Donald Driver Foundation, Straight Up Boxing, Wisconsin Humane Society, Steve Nash Foundation and Midwest Athletes Against Childhood Cancer (MACC Fund), among other organizations.

The Board of Directors is immensely grateful to Dr. Ahuja. His generosity will help blaze a trail of advancements in our field and serve as an exemplar to his peers.

To join your fellow philanthropists who help light the way for young neurosurgeons and support the advancement of the specialty, contact the NREF for information on the variety of donation options available.
CUTTING-EDGE EDUCATIONAL COURSES, RESIDENTS TO PRACTICING NEUROSURGEONS

The NREF is dedicated to providing education to neurosurgeons at all stages of their careers to stimulate learning and enhance their educational opportunities.

In cooperation with the AANS, the NREF offers free Resident Courses to provide advanced resident educational training in topic areas not always covered within neurosurgical residency. Course participants are nominated by their institutions.

Thanks to the NREF, the AANS and valued corporate supporters, nearly 2,000 residents have attended a Resident Education Course, with thousands more viewing presentations online. Residents that have attended these courses have described them as unparalleled learning and networking opportunities.

The NREF also expanded its informational and educational offerings with a complimentary webinar series on fluorescence-guided surgery and plans are already underway for additional webinars on a variety of topics.

**Course topics have included:**
- Spinal Deformity;
- Peripheral Nerve;
- Endovascular;
- Open Vascular;
- Skull Base;
- Stereotactic Radiosurgery;
- Pediatric Resident Review;
- Exit Strategies;
- Science of Practice;
- Stereotactic and Functional; and
- New this fall: MIS and Emerging Technologies in Spine.

**OTHER EDUCATION NEWS**

The NREF sponsored a Neurocritical Care Symposium to fill practice and knowledge gaps practicing neurosurgeons may encounter post-training, as the state of neurocritical care is evolving. The symposium was held in September 2016 in conjunction with the Western Neurosurgical Society’s Annual Meeting.
POST-RESIDENCY CLINICAL FELLOWSHIP PROGRAM EXPANDED THIS YEAR

For the 2016-17 academic year, the NREF awarded nine Post-residency Clinical Fellowships (PRCF), including the first pediatric and oncology fellowships awarded since the inception of the PRCF in 2010. Since then, the NREF has supported over 80 of these fellowships at more than 25 neurosurgery training programs in North America.

The NREF recognizes the following corporations for their support of the PRCF program: DePuy Synthes Spine, Companies of Johnson-Johnson; Arbor Pharmaceuticals, LLC; Medtronic; Zimmer Biomet; and Rosa.

“The NREF is grateful to our corporate sponsors who continue to help in its mission to ensure that tomorrow’s leaders in medicine receive cutting-edge training that expands knowledge and improves patient care,” stated Ennio A. Chiocca, MD, PhD, FAANS, NREF Education Advisory Committee chair.

The NREF encourages institutions to apply for funding for clinical neurosurgical fellowships in spine surgery, endovascular neurosurgery, general neurosurgery, neurocritical care, neurosurgical oncology, cerebrovascular-related fellowships, pediatric neurosurgery, peripheral nerve surgery and stereotactic/functional neurosurgery.

The following programs were awarded PRCF grants for the 2016-17 academic year:
- Ann & Robert H. Lurie Children’s Hospital of Chicago
- Barrow Neurological Institute of St. Joseph’s Hospital & Medical Center
- Cedars Sinai Medical Center
- Thomas Jefferson University
- University of Miami
- University of Michigan
- University of Virginia
- University of Wisconsin
- Washington University
OUR MISSION:
To Provide Research Grants and Young Clinician Investigator Awards

As the premier funder of neurosurgical studies, the NREF provides funding for Research Fellowship Grants and Young Clinician Investigator Awards for studies in basic, translational and patient-oriented clinical research for investigators in North America through two neurosurgical research grant programs. Since 1980, residents and young clinician investigators at 91 academic institutions have received funding from the NREF.

Open to residents only, the NREF Research Grant provides training for neurosurgeons who are preparing for academic careers as clinician investigators. Applicants must be physicians who have been accepted into or who are currently in approved residency training programs in neurological surgery in North America.

The NREF Young Clinician Investigator Award supports junior faculty who are pursuing careers as clinical investigators. Applicants must be neurosurgeons, no more than two years from the end of their clinical training, who are full-time faculty in North American teaching institutions.

“The NREF is grateful to the donors, sponsors and partner organizations who make it possible for us to continue funding groundbreaking neurosurgical research and providing extraordinary training opportunities for neurosurgeons,” stated Dr. Chiocca.

The members of the NREF Education Advisory Committee are responsible for the review of grant applications based upon established fellowship program criteria and the needs of the requesting hospital and/or academic institution and do so in an independent, unbiased manner. Individuals serving on the committee are neurosurgeon volunteers and do not receive compensation from the NREF or any other entity for their efforts.

Thank you to the following organizations that provided financial support to the NREF Research Fellowship Grants and Young Clinician Investigator Awards in FY 2017:

- American Academy of Neurological Surgery
- AANS/CNS Joint Cerebrovascular Section
- AANS/CNS Joint Section on Pain and Peripheral Nerves
- AANS/CNS Joint Section on Pediatric Neurological Surgery
- AANS/CNS Joint Section on Tumors
- Bagan Family Foundation
- B*CURED
- Medtronic
THE 2016-2017 RESEARCH FELLOWSHIP GRANT &
YOUNG CLINICIAN INVESTIGATOR AWARD RECIPIENTS

Christopher Alvarez-Breckenridge, MD, PhD, Massachusetts General Hospital
AANS/CNS Joint Section on Tumors Research Fellowship Grant
Project Title: “Genomic characterization of melanoma’s metastatic genetic drivers to the brain and predictors of response to immune checkpoint blockade”

Han-Chiao Isaac Chen, MD, University of Pennsylvania
Bagan Family Foundation Young Clinician Investigator Award
Project Title: “Restoring visual cortex function using self-aggregating cortical spheroid tissue or dissociated neurons”

Kimberly Hamilton, MD, University of Wisconsin-Madison
AANS/CNS Joint Section on Pediatric Neurological Surgery Research Fellowship Grant
Project Title: “The Folate and Methylation Pathway in Regeneration and Recovery of the Injured Peripheral Nervous System”

Mark Alexander Mahan, MD, University of Utah
NREF and American Academy of Neurological Surgery Young Clinician Investigator Award
Project Title: “Preclinical model of rapid-stretch nerve injuries”

Matthew Mian, MD, Massachusetts General Hospital
AANS/CNS Joint Section on Pain and Peripheral Nerves Research Fellowship Grant
Project Title: “Emotional Conflict Processing in Humans”

Jamie Purzner, Stanford University School of Medicine
B*CURED-NREF Research Grant
Project Title: “Exploring the Epigenetic Regulation of Neuronal Differentiation to Differentiate Medulloblastoma Cells”

Visish Srinivasan, MD, Baylor College of Medicine/M. D. Anderson Cancer Center
AANS/CNS Joint Cerebrovascular Section Research Fellowship Grant
Project Title: “Endovascular Delivery of Allogenic Human Mesenchymal Stem Cells Transfected with the Delta-24 Oncolytic Virus in a Canine Model of Glioblastoma”

Ananth Vellimana, Washington University School of Medicine
NREF/Medtronic Research Fellowship Grant
Project Title: “Activation of Endogenous Protective Mechanisms: A Potential Therapeutic Strategy to Combat SAH-induced Neurovascular Dysfunction”

Marcus Zachariah, MD, Massachusetts General Hospital
NREF and American Academy of Neurological Surgery Research Fellowship Grant
Project Title: “Circulating Tumor Cells and Brain Metastasis”
MEDICAL STUDENTS EXPERIENCE NEUROSURGERY IN SUMMER RESEARCH FELLOWSHIPS

Thanks to the support of Dr. Cohen-Gadol, who provided royalties from the sale of the COHEN™ Bipolar Forceps from Kirwan Surgical Products, the NREF was able to increase the number of Medical Student Summer Research Fellowships (MSSRF) awarded in 2017. Twenty-five medical students will receive an award in 2017.

“Dr. Cohen-Gadol’s commitment not only sets a terrific example for others to follow, but allows us to further harness the power of donor support and build on the upward momentum of the Foundation,” says NREF vice chair, Dr. Haid. Funding for these and other NREF grants and fellowships can be provided through royalties, planned gifts, donor-advised funds, stock transfers and other ways.

The MSSRF program offers fellowships in the amount of $2,500 to medical students in the U.S. or Canada who have completed one or two years of medical school and wish to spend a summer working in a neurosurgical laboratory, mentored by a neurosurgical investigator sponsor who is a member of the AANS.

Annually, these fellowships go to the brightest and most dedicated students, whose research projects are aimed at the better understanding, treatment and prevention of neurological disorders and improved patient care.

An award from the NREF can be a springboard to future success.

“I received a 2015 NREF Medical Student Summer Research Fellowship. The research supported by the Fellowship has been published in the JNS, and I have had the opportunity to speak at neurosurgical meetings. I want to thank the NREF for their generous support that made this project possible. It has been a tremendous experience for me as I pursue an academic career. The Fellowship allowed me to work closely with physicians who’ve become instrumental mentors in my life and we are continuing to collaborate on new research initiatives.”—Eugene Vaios, Harvard Medical School
2017 Aaron Cohen-Gadol Medical Student Summer Research Fellowship Awardees

Dustin Roberts
University of California Los Angeles

Jason K. Karimy
Yale University

Mounica Reddy Paturu
Washington University in St. Louis
School of Medicine

Erin Nicole D’Agostino
Dartmouth Hitchcock Medical Center

Ali Jamal
University of Saskatchewan

2017 Medical Student Summer Research Fellowship Awardees

Akop Seksenyan
University of Illinois at Chicago

Connor Berlin
Memorial Sloan Kettering Cancer Center

Vivek Sudhakar
University of California San Francisco

Fabiha Rahman
Ottawa Hospital Research Institute

Iyan Younus
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Presbyterian Medical Center of Philadelphia and Veteran’s Administration Medical Center

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University of Minnesota Medical School

Ali Karim Ahmed
The Johns Hopkins School of Medicine and The Johns Hopkins Hospital

Brian Christian Kaszuba
Albany Medical College

Felicia Sun
Stanford University School of Medicine

Raghad Gupta
Beth Israel Deaconess Medical Center Harvard Medical School

Best 2016 MSSRF Abstract Presented at the 2017 AANS Annual Scientific Meeting

Joseph Scott Hudson
University of Iowa

Project Title: “Determination of Biological Longevity in a Novel Hemocompatible and Antithrombotic Coating for Neurovascular Stents and Flow Diverters”
PRESTIGIOUS VAN WAGENEN FELLOWSHIP CELEBRATES 50 YEARS

On Saturday, April 22, 2017, Van Wagenen fellows from around the country gathered at The Palm restaurant in Los Angeles, to celebrate the 50th anniversary of the Van Wagenen Fellowship.

The Van Wagenen Fellows honored the memory of William and Abigail Van Wagenen (pictured) whose vision and generous support opened so many pathways to excellence in American academic neurosurgery. A highlight of the evening were remarks from the event’s special guest, Paula D. Wilson, MD, MPH, and Dr. Van Wagenen’s great niece — who spoke eloquently about the family’s ongoing commitment to preserving the Van Wagenen legacy.

The evening was an opportunity for the fellows to express their thanks to the Fellowship stewards: Frank Smith, MD, for nurturing the Fellowship through its early years; Robert A. Ratcheson, MD, FAANS(L), for guiding it when the endowment was established; the recent efforts of the Van Wagenen family and Webster H. Pilcher, MD, PhD, FAANS, and the NREF to ensure its future.

The 1981 Van Wagenen Fellow, Stephen J. Haines, MD, FAANS, presented a brief history of the Fellowship. Dr. Pilcher, chair of the Department of Neurological Surgery at the University of Rochester and a strong supporter of the Fellowship, spoke on Dr. Van Wagenen’s contributions to the specialty.

Each decade of the Van Wagenen Fellowship was represented with remembrances from several fellows, including Ira C. Denton Jr., MD, FAANS(L) (1971); Larry Van Carson, MD, MBA, FAANS (1982); Timothy C. Ryken, MD, FAANS (1995); Uzma Samadani, MD, PhD, FAANS (2006); and Andrew W. Grande, MD, FAANS (2010).
“This fellowship has had a profound impact on my professional career, the extent of which I seem to better appreciate with each passing year. The opportunity to study in the company of master surgeons in Germany not only provided technical skills that I use on a daily basis, but did so in the context of an enriching cultural experience for both my family and me. With the benefits of the experience being as much cultural and philosophical as they were scholarly and neurosurgical, I regard the Van Wagenen Fellowship as one of the defining and most precious moments in my professional career.” —Kamal Thapar, MD, FAANS, Recipient, 1998 William P. Van Wagenen Fellowship

A donation to the Van Wagenen Fellowship Fund 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. Visit www.nref.org to make a donation.

CURRENT VAN WAGENEN FELLOWSHIP RECIPIENT: S. KATHLEEN BANDT, MD

The 2017 recipient of the William P. Van Wagenen Fellowship was S. Kathleen Bandt, MD, a fellow in Epilepsy & Functional Neurosurgery at Yale University, who began her fellowship in July 2016.

Dr. Bandt traveled to France, hosted by Aix-Marseille University, and under the mentorships of Jean Regis, MD, and Dr. Maxime Guy, she pursued her research topic of Functional and Structural Connectivity in Focal Epilepsy as Defined by Advanced MR Techniques. Dr. Bandt’s goal was to better understand the physiologic perturbations in network connectivity in human disease by advancing the understanding of human cortical neurophysiology through the study of both direct electrocorticography and noninvasive advanced imaging techniques.

Upon being named a Van Wagenen Fellow, Dr. Bandt said, "I accept this year’s Van Wagenen Fellowship with humble gratitude. I am thrilled to have the opportunity to complete my research on epilepsy network connectivity in Marseille, France, and look forward to walking through the doors this opportunity opens for me during my career ahead."

Awarded annually since 1968, the Van Wagenen Fellowship is offered for post-residency study in a foreign country for a period of 12 months. The William P. Van Wagenen Fellowship was established by the estate of Dr. Van Wagenen, who was one of the founders and the first president of the Harvey Cushing Society, now the AANS. The Van Wagenen Fellowship was designed to provide freedom in scientific development without the restrictive limitations usually imposed by many research grants and fellowships.
CORPORATE SUPPORTERS ARE ESSENTIAL TO THE SUCCESS OF THE NREF

The NREF gratefully acknowledges Brainlab, Codman, DePuy/Synthes, Globus Medical, Integra, Leica Microsystems, Medtronic, Synaptive Medical, Varian Medical Systems and ZEISS for their commitment to advance neurosurgery and important areas such as research, education and training as FY17 Pinnacle Partners in Neurosurgery.

Invited to attend the Corporate Leadership Council in January 2017, corporate representatives met with AANS, NPA and NREF leaders to engage in an open dialogue regarding recent projects and future plans. This year’s meeting provided a vital forum for the sharing of ideas and discussion of topics of mutual interest, including new developments in the field of neurosurgery, improvements in diagnostics and treatments, changes in health-care delivery and consumer expectations, advocacy, health-care reform, compliance, transparency and evidence-based medicine.

The annual meeting, led by Michael W. Groff, MD, FAANS, chair of the NREF Development Committee, focused on educational opportunities, advocacy and data registries.

- Charles L. Branch Jr., MD, FAANS, NREF Development Committee co-chair, provided a brief history of neurosurgery and the ways in which medical device companies have been instrumental in furthering the profession since its inception.

- Frederick A. Boop, MD, FAANS, provided an overview of the AANS.

- Jon H. Robertson, MD, FAANS, NREF chair, thanked the corporate partners for their support without which the NREF mission could not be fulfilled.

- Robert E. Harbaugh, MD, FAANS, discussed the important role of NPA as the data management entity of the AANS.

- John A. Wilson, MD, FAANS, NREF treasurer and past chair of the Washington Committee, explained that the AANS is involved in legislative advocacy for fair reimbursement, regulatory relief and trauma care, in some instances by collaborating with several other neurosurgical organizations. Representing all of neurosurgery, it also manages a strong grassroots program to support individual neurosurgeon’s political involvement.

For more information about the Pinnacle Partners Program or the Corporate Leadership Council, contact the NREF at info@nref.org.
HONOR YOUR MENTOR FUNDS GROW IN NUMBERS AND SIZE

HYM Funds were established by the NREF three years ago to celebrate the mentors of neurosurgery: those who have advanced the specialty by giving generously of their time and talents to support and nurture future neurosurgeons.

Today, there are 31 HYM funds with an additional eight funds being finalized. Pledges to HYM funds now total $3,670,931 from 695 donors.

The NREF is pleased to recognize the leadership role taken by Sections in support of the HYM program:

- The AANS/CNS Section on Disorders of the Spine and Peripheral Nerves has pledged multi-year financial support of $500,000 toward five NREF HYM Funds: Stewart Dunsker; Regis Haid Jr.; Charles Kuntz IV; Sanford Larson; and Volker K. H. Sonntag. This vote of confidence to invest in HYM funds demonstrates the section’s commitment to their research and educational goals. In addition, a fundraiser was held at the Spine Summit to raise monies for a number of funds.

- Member dues invoices from Women in Neurosurgery (WINS) include a voluntary pledge to the Karin M. Muraszko HYM Fund, which will develop leaders in neurosurgery by providing mentoring and didactic education.

- The AANS/CNS Section on Neurotrauma & Critical Care member dues notices also included a voluntary pledge to the Anthony Marmarou HYM Fund for neurotrauma activities.

Awards from the HYM Funds made during this fiscal year include:

- Heather Pinckard-Dover, MD, of the University of Arkansas was selected as the first recipient of an award from the Warren C. Boop Jr. HYM Fund. Dr. Pinckard-Dover made a presentation to the Southern Neurosurgical Society on her findings from a study of head and spinal injuries resulting from falls from tree stands while hunting.

- The first tumor research project funded by the Andrew T. Parsa HYM Fund was awarded this spring by the AANS/CNS Section on Tumors to Darryl Lau, MD, of the University of California, San Francisco.

- Funds from the Charles Drake HYM Fund will be used for the Cerebrovascular registry with oversight by the NPA.

- The Regis W. Haid Jr. HYM Fund is supporting the administration and launch of the QOD study for NPA: “Effectiveness of Fusion for Grade I Spondylolisthesis”.

- The Charles Kuntz IV HYM Fund supported resident travel to the 2017 Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves.
Honor Your Mentor Funds

(As of June 30, 2017):

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

Roy A.E. Bakay Fund
To fund research in stereotactic and functional neurosurgery

Ulrich Batzdorf Fund
To fund basic science research in spinal cord injury

Ed Benzel Fund
To support clinical outcomes studies to analyze posture and deformity in cervical spondylotic myelopathy patients

Warren C. Boop Jr. Fund
To support resident education and research at the University of Arkansas

Charles L. Branch Sr. Fund
To support clinical outcomes research for lumbar interbody fusion and cervical fusion using registry data

Edward S. Connolly Fund
To support clinical outcomes studies, clinical or basic science research and fellowships in spine

Charles G. Drake Fund
To support the cerebrovascular registry within the NPA. In memory of the late Charles Drake, Professor and Chair Emeritus at the University of Western Ontario

Stewart B. Dunsker Fund
To support clinical or basic science research and fellowships in spine

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

John A. Jane Sr. Fund
To support resident education and research through the NREF at the University of Virginia

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

Charles Kuntz IV Fund
To fund awards for residents and fellows to present research at the Spine Section’s Annual Meeting

Sanford J. Larson Fund
To fund award for best spine research paper at the AANS Annual Scientific Meeting

Edward R. 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
Anthony Marmarou Fund
To fund TBI registry research and/or young investigator research in ICP and brain edema, and to support the Marmarou Named Lectureship on ICP, cerebral edema, and/or TBI-related topics at the Neurotrauma Section session of the annual AANS meeting

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

Kent C. New Fund
To fund research and the clinical treatment of spinal cord injury

Andrew T. 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 maintenance and development of The Rhoton Collection and funding for micro neuroanatomical research fellowships

Jon H. Robertson Fund
To support education and research within the University of Tennessee neurosurgery resident program

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

Henry G. Schwartz Fund
To support staff and resident education and research within the department of Neurosurgery training program at the Barnes-Jewish Hospital/Washington University in St. Louis

Volker K. H. Sonntag Fund
To support 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 H. Tator Fund
To support basic science research in spinal cord injury

Martin H. Weiss Fund
To support research training in residents

Charles B. Wilson Fund
To fund brain tumor research

Military Heroes
To honor those that have served with funds utilized for military surgeons and surgeons-in-training
ANDREW T. PARSA HYM FUND PROVIDED ITS FIRST RESEARCH GRANT

The Andrew T. Parsa HYM Fund awarded its first grant for brain tumor research to Dr. Lau, of the University of California, San Francisco for his project, “The Role of c-Met/β1-integrin Complex Formation in the Establishment of Brain Metastases.” This grant was made possible through the ongoing support of Brainlab and the Columbia University Annual Neurosurgery Charity Softball Tournament.

“At Brainlab, we focus on boosting cancer survivorship by developing new and minimally invasive methods to treat cancers of the brain and body and increase patient comfort during treatment,” says Sean Clark, president of U.S. Operations for Brainlab. “We are delighted to support the Andrew Parsa Fund in its mission to provide resources to researchers that will ultimately give neurosurgeons at hospitals around the country innovative, state-of-the-art techniques in treating and managing brain tumors.”

“The softball tournament brings together teams from across the U.S, Canada and the Caribbean, securing much-needed funding for brain tumor research,” according to tournament co-director, Jeffrey N. Bruce, MD, FAANS, of Columbia University.

Forty teams of neurosurgeons — the most ever in the history of this tournament — from top medical institutions competed on June 3 in New York City’s Central Park in the 14th Annual Neurosurgery Charity Softball Tournament hosted by Columbia University.

This year’s expanded field of competing neurosurgical departments included: Albert Einstein, Barrow, Case Western Reserve, Columbia, Duke, Emory, Harvard, Johns Hopkins, Louisiana State University, Mayo Clinic, Mount Sinai, New York University, Thomas Jefferson, Penn State, George Washington, Ohio State, Alabama, University of Buffalo, Tennessee, University of Texas-Houston, Utah, Florida, Miami, Michigan, Penn, Pittsburgh, Puerto Rico, University of South Florida, Toronto, University of Virginia, Vanderbilt, Cornell/Memorial Sloan-Kettering, Kansas University, Wake Forest, Washington University, Carolina Neurosurgery and Spine Associates, Colorado, Indiana, Northwestern and Yale.

The final four teams were USF, Ohio State, Emory and Vanderbilt. Vanderbilt (pictured in the team photo) claimed their first championship by beating USF 20-13 in the finals.
THE CUSHING CIRCLE OF GIVING

The NREF Cushing Circle of Giving was established in 2008 to provide a cumulative, lifetime and planned giving society for individuals with the goal of increasing donations and creating a premier recognition society. The Cushing Circle honors Dr. Harvey Cushing and provides camaraderie among philanthropists who have made a financial commitment to the NREF with a contribution of at least $25,000 or a deferred gift of $50,000 or more.

Cushing Circle members represent over $3,000,000 in cumulative donations.

**July 2013:** 35 Individual Members  
**July 2013:** 0 Academic Programs & Institutions  
**June 2017:** 120 Individual Members  
**June 2017:** 27 Academic Programs & Institutions

The NREF is grateful for the generosity of the following philanthropic individuals, institutions and affiliated organizations who comprise the Cushing Circle of Giving as of June 30, 2017:

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**Platinum ($100,000 and above)**
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Weill Cornell Neurological Surgery Department, Dr. Philip Stieg, Chair
Western Neurosurgical Society
INTRODUCING THE YOUNG NEUROSURGEONS CIRCLE OF GIVING

The Young Neurosurgeons Circle of Giving was established in 2016 to introduce neurosurgical residents into the culture of philanthropy within their profession with the goal of increasing donations over their lifetime and eventual membership in the NREF’s premier recognition society: the Cushing Circle of Giving.

Membership is open to residents who demonstrate a commitment to advancing neurosurgery with a cash contribution of $500. Eligibility for inclusion in the Young Neurosurgeons Circle expires at the conclusion of the residency period. Gifts can be made as a one-time contribution, in regular monthly or annual installments or as part of a tiered plan during the course of residency.

The NREF is pleased to recognize the members of the Young Neurosurgeons Circle of Giving as of June 30, 2017:

Gold ($2,500 and above)
Nitin Agarwal, MD

Silver ($1,000-$2,499)
Stephen T. Magill, MD, PhD

Bronze ($500-$999)
Lisa Anne Feldman, MD, PhD
Allen Ho, MD
Debraj Mukherjee, MD
Steven Tenny, MD

Information about the Young Neurosurgeons Circle of Giving is available online at www.nref.org/Donate or by contacting NREF staff via email at info@nref.org.
DONOR REPORT 2016–2017

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, 2016 through June 30, 2017.

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James Thomas Robertson, MD, FAANS(L)
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($1,000-$2,499)
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Shelly D. Timmons, MD, PhD, FAANS
Ann R. Stroink, MD, FAANS
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AANS 2017 Annual Report
MEMORIALS
The following contributions were made in memory of colleagues, family members and friends:

Ravi Agarwal, MD, in memory of Brig. A.D. Agarwal
American Association of Neurological Surgeons in memory of Elizabeth McNulty Kuhn
American Association of Neurological Surgeons in memory of Marion Prisby
Howard & Linda Blegen in memory of William David Hynes
Dan W. Branch, MD, in memory of Dr. Charles L. Branch Sr.
Susan and Chris Cascino in memory of Hsiang-lai Wen, MD, FAANS
John H. Chi, MD, FAANS, in memory of Dr. Hsiang Lai Wen
Courtney C. Coke, MD, in memory of Dr. Hsiang Lai Wen MD
Kathleen T. Craig in memory of Jo Ann Craig
Sarahane Dagen in memory of Dr. Hsiang Lai Wen
Glenn Fidge in memory of Connie Fidge
Katherine Fung in memory of Dr. Hsiang-Lai Wen
Regis W. Haid, Jr., MD, FAANS, in memory of Marion Prisby
John D. Heiss, MD, in memory of John Heiss
Brett Johnson and David McSweeney in memory of Dr. Hsiang Lai Wen
Joyce Kane & Family in memory of Kate Carney on her 10th birthday
Molly King in memory of Robert B. King
Ian Krinock in memory of Anita Brown
Mark J Krinock, MD, in memory of Anita Louise Brown
Lynette Lee and Family in memory of Dr. Hsiang Lai Wen
J. Richard Lister MD, MBA, FAANS, in memory of Dr. Albert L. Rhoton Jr.
Eric W. Nottmeier, MD, in memory of Natalie New
The Powers Family in memory of Marion Prisby
Vikram C. Prabhu in memory of Dr. Lyal Leibrock
Rocky River City School District in memory of Kate Carney
Irfan Samad in memory of Irfan R
Joni L. Shulman, MPH, in memory of Jen Bloomgarden
Joni L. Shulman, MPH, in memory of Marion Prisby
Randy Smith in memory of Justin Renaudin
Richard A. Stea, MD, FAANS, in memory of Robert B. King, MD
The Dana-Farber Center for Neuro-Oncology in memory of Dr. Hsiang-Lai Wen
Earl White in memory of Dr. Maxim Koslow
Les Wu and family in memory of Dr. Hsiang-Lai Wen

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

Philipp and Carmina Aldana in honor of Dr. Benigno S. Aldana Jr.
Cargill H. Alleyne, Jr. in honor of Regis W. Haid Jr., MD
Walter L. Bailey, MD, FAANS(L), in honor of George A. Ojemane, MD, FAANS(L)
Susan and Chris Cascino in honor of Susan Cascino
The Chahlavi family in honor of Dr. Kent New
Edmund Frank, MD, in honor of Stewart Dunsker, MD, FAANS(L)
Aruna Ganju, MD, FAANS, in honor of Karin M. Muraszko, MD, FAANS
Ira M. Garonzik, MD, FAANS, in honor of Regis W. Haid Jr., MD, FAANS
Charles F. Goetz in honor of Dr. John Jane and Dr. John Jane Jr.
Peter Grossi, MD, FAANS, in honor of Dr. Kent New
Robert L. Grubb, Jr., MD, FAANS(L), in honor of Dr. & Mrs. Robert L. Grubb, Jr.
John D. Heiss, MD, in honor of Stewart Dunsker, MD
Jason H. Huang, MD, FAANS, in honor of Dr. David Kline
Brett Johnson and David McSweeney in honor of Patrick Y. Wen, MD
Mark J. Kubala, MD, FAANS(L) in honor of Dr. James Greenwood
Daniel and Jennifer Kueter in honor of Dr. Warren Boop
Steven Lee in honor of Dennis Wen
Dr. Stuart Lee in honor of Dr. Volker Sonntag
S. Scott Lollis, MD, FAANS in honor of Dr. Ed Benzel
Margaret Lovell in honor of Dr. LaVerne R. Lovell
Georges Z. Markarian, MD, MBA, FAANS, FACS in honor of Dr. Ed Benzel, MD, FAANS
L. Madison Michael II, MD in honor of Dr. Al Rhoton, Jr.
Eric W. Nottmeier, MD in honor of Dr. Kent New
Dr. and Mrs. Eric Rhoton in honor of Father and Teacher
Ron Riesenburger, MD, FAANS and Tara Riesenburger in honor of Dr. Ed Benzel
James Thomas Robertson, MD, FAANS(L) in honor of Jon H. Robertson, MD, FAANS
James C. Robinson, MD, FAANS in honor of David L. Kelly, Jr., MD, FAANS(L)
Martin A. Samuels and Susan F. Pioli in honor of Dr. Edward Laws
Daniel Scodary MD in honor of Stewart Dunsker, MD
Dr. and Mrs. R. Michael Scott in honor of Dr. Edward Laws
Clarence & Christy Watridge in honor of Donald F. Dohn
Robert E. Wharen, Jr., MD, FAANS in honor of Dr. Kent C. New
Lyman William Whitlatch, Jr., MD, PhD, FAANS in honor of Kent C. New, MD, PhD, FAANS(L)

CORPORATE AND INSTITUTIONAL GIVING 2016-2017

AANS/CNS Cerebrovascular Section
AANS/CNS Section of Neurotrauma and Critical Care
AANS/CNS Section on Disorders of the Spine and Peripheral Nerves
AANS/CNS Section on Pain
AANS/CNS Section on Pediatric Neurological Surgery
AANS/CNS Section on Tumors
Amazon.com Books
American Academy of Neurological Surgery
American Association of Neurological Surgeons
Arbor Pharmaceuticals, LLC
Brainlab
Brigham & Women’s Hospital Neurology Department
California Association of Neurological Surgeons (CANS)
Carolina Neurosurgery & Spine Assoc.
Codman Neuro, part of the Johnson & Johnson family of companies
Columbia University-Department of Neurological Surgery
The Dana-Farber Center for Neuro-Oncology
DePuy Synthes, part of the Johnson & Johnson family of companies
Globus Medical
Henry Ford Hospital Neurosurgical Residency
HSBC Philanthropic Programs
Integra LifeSciences
International Business Machine
Leica Microsystems
Massachusetts General Hospital Department of Neurosurgery
Mayo Clinic-Department of Neurologic Surgery
Medtronic
Neurosurgical Society of the Virginias
New England Neurosurgical Society
Pennsylvania Neurosurgical Society
Princeton Brain & Spine Care, LLC
River Run For A Cause
Rocky River City School District
Semmes Murphey Clinic, Memphis, TN
Singer Foundation
Southern Neurosurgical Society
Synaptive Medical
Toshiba Medical Systems
United Way of Long Island
University of Pennsylvania Department of Neurosurgery
USC Department of Neurological Surgery
UT Southwestern Department of Neurosurgery
Varian Medical Systems
ZEISS
FISCAL 2017
FINANCIAL SUMMARY
AANS, NREF AND NPA

Over the last decade, with the good stewardship of its governance, the AANS has built a healthy reserve that serves to protect the organization in the event of financial adversity. Strong results in FY17 added to those reserves. In recent years, the AANS has begun to use funds in excess of these reserves for special one-time activities, such as NPA projects, JNS website investment and partial funding of the Society of Neurological Surgery’s Neurosurgery Portal.

The AANS experienced a solid financial year in FY17. Corporate support was robust, annual meeting attendance was strong and expenses remained in line with prior years. Despite the AANS’ core program centers staying in line with budget, the real success story of last year was the very strong showing of investments. The AANS was able to return more than $1 million, significantly exceeding its $600,000 investment budget. The AANS finished the year with a net excess (addition to reserves) of more than $600,000.

The NREF shared a similar story with the AANS: investment earnings exceeded budget by more than $130,000. This resulted in a net excess of $195,000.

The NPA is in a period of rapid expansion and the FY17 budget reflected this reality. Although, as anticipated and budgeted, the NPA operated at a deficit last year, there is cause for cautious optimism: several of its registries are maturing and increasing in value and the costs of the various NPA registries may begin to decline, both through economies of scale and the reality of a more competitive marketplace for the vendors providing necessary registry services.

This report reflects the financial statements of the AANS, NREF and NPA covering the period of July 1, 2016, to June 30, 2017.

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.
FINANCIAL STATEMENT

AANS AND RELATED ORGANIZATIONS STATEMENT OF FINANCIAL POSITION* 06/30/2017

*This report reflects unaudited financials.

ASSETS 2016–2017

<table>
<thead>
<tr>
<th></th>
<th>AANS</th>
<th>NREF</th>
<th>NPA</th>
<th>CONSOLIDATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and Investments</td>
<td>$21,687,035</td>
<td>$6,341,612</td>
<td>$467,363</td>
<td>$28,496,010</td>
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<tr>
<td>Other Current Assets</td>
<td>6,918,183</td>
<td>1,909,543</td>
<td>1,062,588</td>
<td>9,890,314</td>
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<tr>
<td>Property and Equipment, net</td>
<td>2,340,298</td>
<td>0</td>
<td>0</td>
<td>2,340,298</td>
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<tr>
<td>Other Assets</td>
<td>218,949</td>
<td>0</td>
<td>0</td>
<td>218,949</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>$31,164,464</td>
<td>$8,251,155</td>
<td>$1,529,951</td>
<td>$40,945,570</td>
</tr>
</tbody>
</table>

LIABILITIES AND EQUITY

<table>
<thead>
<tr>
<th></th>
<th>AANS</th>
<th>NREF</th>
<th>NPA</th>
<th>CONSOLIDATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payables</td>
<td>4,474,446</td>
<td>1,123,618</td>
<td>1,344,541</td>
<td>6,942,605</td>
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<tr>
<td>Deferred Revenue</td>
<td>4,673,088</td>
<td>227,499</td>
<td>658,766</td>
<td>5,559,353</td>
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<tr>
<td><strong>Total Liabilities</strong></td>
<td>$9,147,534</td>
<td>$1,351,117</td>
<td>$2,003,307</td>
<td>$12,501,958</td>
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</table>

Equity

<table>
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<tr>
<th></th>
<th>AANS</th>
<th>NREF</th>
<th>NPA</th>
<th>CONSOLIDATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Net Assets</td>
<td>21,402,001</td>
<td>6,704,842</td>
<td>(67,664)</td>
<td>28,039,179</td>
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<tr>
<td>Net Income</td>
<td>614,930</td>
<td>195,195</td>
<td>(405,691)</td>
<td>404,434</td>
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<tr>
<td><strong>Total Equity</strong></td>
<td>$22,016,931</td>
<td>$6,900,037</td>
<td>$(473,355)</td>
<td>$28,443,613</td>
</tr>
<tr>
<td><strong>Total Liabilities and Equity</strong></td>
<td>$31,164,464</td>
<td>$8,251,155</td>
<td>$1,529,951</td>
<td>$40,945,570</td>
</tr>
</tbody>
</table>

AANS AND RELATED ORGANIZATIONS INCOME STATEMENT FOR THE YEAR ENDED 6/30/17

<table>
<thead>
<tr>
<th></th>
<th>AANS</th>
<th>NREF</th>
<th>NPA</th>
<th><strong>Consolidated</strong></th>
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</thead>
<tbody>
<tr>
<td>Revenues</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dues/Contributions</td>
<td>$2,683,580</td>
<td>0</td>
<td>$2,219,701</td>
<td>$4,903,281</td>
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<tr>
<td>Annual Meeting</td>
<td>5,892,460</td>
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<td>5,892,460</td>
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<tr>
<td>Publications</td>
<td>5,280,557</td>
<td>0</td>
<td>5,280,557</td>
<td></td>
</tr>
<tr>
<td>EPM</td>
<td>2,156,512</td>
<td>0</td>
<td>2,156,512</td>
<td></td>
</tr>
<tr>
<td>Fundraising</td>
<td>0</td>
<td>1,247,816</td>
<td>0</td>
<td>1,247,816</td>
</tr>
<tr>
<td>Resident &amp; Clinical Courses</td>
<td>0</td>
<td>1,016,901</td>
<td>0</td>
<td>1,016,901</td>
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<tr>
<td>Investments</td>
<td>1,045,749</td>
<td>132,710</td>
<td>0</td>
<td>1,178,459</td>
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<tr>
<td><strong>Total Revenue</strong></td>
<td>$17,058,858</td>
<td>$2,397,427</td>
<td>$2,219,701</td>
<td>$21,675,986</td>
</tr>
</tbody>
</table>

CONSOLIDATED REVENUE SOURCES

- Dues/Contributions Income: 23%
- Annual Meeting Income: 27%
- Publications: 26%
- EPM: 10%
- Fundraising: 6%
- Resident and Clinical Courses: 5%
- Investments: 5%
AANS MISSION STATEMENT
The AANS promotes the highest quality of patient care and advances the specialty of neurological surgery.

AANS VALUES
- Integrity
- Leadership
- Excellence
- Professionalism

AANS OFFICERS
President
Frederick A. Boop, MD, FAANS
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Alex B. Valadka, MD, FAANS
Vice President
Timothy B. Mapstone, MD, FAANS
Secretary
Christopher I. Shaffrey, MD, FAANS
Treasurer
John A. Wilson, MD, FAANS
Immediate Past-president
H. Hunt Batjer, MD, FAANS

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Nicholas M. Barbaro, MD
Richard G. Ellenbogen, MD
Regis W. Haid Jr., MD
Robert F. Heary, MD
Anil Nanda, MD, MPH
Susan C. Pannullo, MD

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Moustapha Abou-Samra, MD, Southwest Regional Director
Charles L. Rosen, MD, PhD, Southeast Regional Director
Holly S. Gilmer, MD, Northwest Regional Director
G. Edward Yates, MD, PhD, Northeast Regional Director

HISTORIAN
Michael Schulder, MD, FAANS

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Sarah J. Gaskill, MD
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John Joseph Knightly, MD
Andre Guelmah Machado, MD, PhD
Daniel Bernard Michael, MD, PhD
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Jon H. Robertson, MD
James T. Rutka, MD, PhD
Usma Samadani, MD, PhD
Ann R. Stronik, MD
Krystal Lynne Tomei, MD, MPH

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J. Andre Grotenhuis, MD, PhD
Mark N. Hadley, MD
Russell R. Lonser, MD
Blas Ezequiel Lopez Felix, MD
Basant Kumar Misra, MD
Franco Servadei, MD
Christopher I. Shaffrey, MD
Edgardo Spagnuolo, MD
Yong-Kwang Tu, MD, PhD

AANS EXECUTIVE OFFICE
Executive Director
Kathleen T. Craig
Chief Financial Officer
Peter B. Kuhn
Associate Executive Director
Alice I. Kelsey
Parliamentarian/Legal Counsel
Michael A. Chabraja, Esq

AANS/NREF/NPA EXECUTIVE OFFICE
5550 Meadowbrook Drive
Rolling Meadows, IL 60008-3852
Phone: 847.378.0500
Toll-free: 888.566.AANS (2267)
Fax: 847.378.0600
info@AANS.org
www.aans.org

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