

# **NEUROSURGERY:** A WORLD OF INNOVATION

NEURO POINT



# NPA CHAIR'S MESSAGE

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 (N<sup>2</sup>QOD). Since then, N<sup>2</sup>QOD 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 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 benefitted from a particular treatment. For example, initial QOD results showed that while 85 percent of patients benefitted from surgery, patients with a high body mass index (BMI), smoking and diabetes appear to have poorer outcomes after spinal surgery. "If [a patient] can get the risk factors under control, or quit smoking, that would really improve the outcomes of surgery," says 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 Brain Surgery & Spine Center at Valley View Carolina Neurosurgery & Spine Associates Central Kentucky Spine Surgery, PLLC 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.

### 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            | AANS         | NREF        | NPA         | CONSOLIDATED |
|-----------------------------|--------------|-------------|-------------|--------------|
| Cash and Investments        | \$21,687,035 | \$6,341,612 | \$467,363   | \$28,496,010 |
| Other Current Assets        | 6,918,183    | 1,909,543   | 1,062,588   | 9,890,314    |
| Property and Equipment, net | 2,340,298    | 0           | 0           | 2,340,298    |
| Other Assets                |              | 0           | 0           |              |
| Total Assets                |              |             | \$1,529,951 | \$40,945,570 |

| LIABILITIES AND EQUITY       | AANS         | NREF        | NPA         | CONSOLIDATED |
|------------------------------|--------------|-------------|-------------|--------------|
| Liabilities                  |              |             |             |              |
| Payables                     |              | 1,123,618   | 1,344,541   | 6,942,605    |
| Deferred Revenue             |              | 227,499     | 658,766     | 5,559,353    |
| Total Liabilities            | \$9,147,534  | \$1,351,117 | \$2,003,307 | \$12,501,958 |
| Equity                       |              |             |             |              |
| Beginning Net Assets         |              | 6,704,842   | (67,664)    |              |
| Net Income                   | 614,930      |             | (405,691)   | 404,434      |
| Total Equity                 | \$22,016,931 | \$6,900,037 | \$(473,355) | \$28,443,613 |
| Total Liabilities and Equity | \$31,164,464 | \$8,251,155 | \$1,529,951 | \$40,945,570 |

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

| Revenues                     | AANS         | NREF | NPA.         | Consolidated | Total % |
|------------------------------|--------------|------|--------------|--------------|---------|
| Dues/Contributions           | \$2,683,580  | 0    | \$2,219,701. | \$4,903,281  |         |
| Annual Meeting               | 5,892,460    | 0    | 0.           |              |         |
| Publications                 | 5,280,557    | 0    | 0.           |              |         |
| EPM                          | 2,156,512    | 0    | 0.           |              |         |
| Fundraising                  | 0            |      | 0.           |              |         |
| Resident & Clinical Courses. | 0            |      | 0.           |              |         |
| Investments                  | 1,045,749    |      | 0.           |              |         |
| Total Revenue                | \$17,058,858 |      | \$2,219,701. | \$21,675,986 |         |



### 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 President-elect 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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Chief Financial Officer Peter B. Kuhn

Associate Executive Director Alice I. Kelsey

Parliamentarian/Legal Counsel Michael A. Chabraja, Esq

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