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Better Together

**Annual
Report
2016**



**Congress of
Neurological
Surgeons**

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The Congress of Neurological Surgeons exists to enhance health and improve lives through the advancement of neurosurgical education and scientific exchange.

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CNS

— EDITOR'S NOTE —



Elad I. Levy, MD

2017 Editor, *Congress Quarterly*

In this Annual Report issue of the cnsq, we try to capture the essence of the synergies that the Congress of Neurological Surgeons creates with its valued members. As the title “Better Together” suggests, advancement, innovation, and educational excellence is achieved through the tremendous combined volunteerism and feedback of the membership around the globe.

Under the stewardship of past-president Dr. Russell R. Lonser, the Annual Report showcases the milestones and achievements of the CNS in 2016. Relevant course offerings such as the resident boot camps, and innovative meeting content such as live Surgical Theater, have led to continued growth in the membership of the CNS. Additionally, the unparalleled quality of the literature available to our members in Neurosurgery, is reflected in its highest impact to date at 3.78.

As the CNS transitions to new leadership under Dr. Alan M. Scarrow, implementation of strategic initiatives that focus on enrichment of educational content, the Annual Meeting experience, and membership value, has already begun. We hope you enjoy the 2106 Annual Report, and look forward to reporting cutting edge updates and novel CNS initiatives as the year unfolds.

I personally wish to thank past publications chair Dr. Gerald Grant for his guidance during this transition.

— 2016 PRESIDENT —



Russell R. Lonser, MD

2016 President, Congress of Neurological Surgeons

I am honored and humbled to have had the opportunity to serve as the president of the Congress of Neurological Surgeons this past year. Over the course of my year as president, something I had long known was validated time and again: It is only through everyone's efforts to work "better together," do we move forward. Regardless of what it is that we want to achieve, it is more difficult, if not impossible, to do so without the help of others. I am grateful for the hard work and dedication of an outstanding team. CNS officers and volunteers have devoted countless hours of their personal and professional lives to ensure the success of our organization and specialty. The CNS Executive Committee has done a remarkable job in advancing worldwide neurosurgical education, research, and patient care. The CNS office, led by Regina Shupak, is our organizational face and implementation team. Under the stewardship of Nelson Oyesiku, editor-in-chief of NEUROSURGERY® Publications, and his outstanding editorial team and staff, our journals have risen to historic heights and stature.

I'm exceedingly proud to be involved in the CNS. The CNS's accomplishments in 2016 were all the more remarkable given the environment in which they occurred. The rate of change currently taking place in healthcare is overwhelming. Thanks in part to years of forward thinking, and a commitment to the development of a new strategic plan, I am confident the CNS is well-positioned to meet the needs of neurosurgeons in the future.

The Congress is dedicated at all times to "enhancing health and improve lives through the advancement of neurosurgical education and scientific exchange." This past year, educational products were updated so that busy practicing neurosurgeons could receive more education in convenient formats such as online webinars and on-demand courses, without sacrificing quality or CME. Our tireless Education Division worked diligently to evolve SANS Lifelong Learning to meet the needs of a milestones-based curriculum and today's neurosurgeons.

Advance, Adapt, Achieve. This was the theme of the 2016 Annual Meeting, and these words exemplify and underscore the intrinsic qualities of each of you. These are the qualities that ensure the ongoing progress and success of our specialty. We went into neurosurgery because of the rewarding challenges it presents and to better humankind. And by working together, we improve the lives of our patients. The Annual Meeting Committee, guided by Steve Kalkanis, Jim Harrop, and Brian Hoh, innovated the Annual Meeting program to bring more clinically-focused content, case presentations, original science, and technological advances to the meeting—all factors which translated to record-high attendance in San Diego last September.

Our Washington Office, led by Katie Orrico, along with Shelly Timmons as Washington Committee Chair, has successfully championed our patients' and specialty's best interests, especially with government and regulatory agencies, and we made significant progress in 2016, working together to advance the interests of neurosurgery in public policy matters.

I want to express my sincerest gratitude to every member of the CNS. Your commitment to your patients and profession is unmatched in the medical world. I thank you for your support during my tenure as CNS President. I am immensely proud of our profession's achievements in 2016, and I look forward to continue to work to advance the specialty and improve the lives of our patients.

— MEMBERSHIP —



The CNS continues to enjoy strong membership levels and engagement.

In 2016, domestic membership grew to 5,979 members and international membership was roughly stable at 1,375 members. The CNS continues to broaden its educational offerings and improve transparency in its communication of member benefits.

As the practicing neurosurgeon works at the center of a broader team, the CNS is renewing focus on both the Associate (non-neurosurgeon physician scientists in related disciplines) and Affiliate (allied health professionals) levels of membership. The CNS continues to support Active International and International Vista members through meeting partnerships and specialized courses.

MEMBER BENEFITS

Membership dues offer members preferential pricing on all educational meetings, courses, and webinars. Membership dues help support the Washington Committee, guidelines development, and broader educational efforts within neurosurgery as well as provide critical infrastructure for the joint subspecialty sections. Other CNS Member benefits include:

- NEUROSURGERY® Publications: *Neurosurgery*, *Operative Neurosurgery*, and *Clinical Neurosurgery*
- *Congress Quarterly* magazine
- CNS Annual Meeting & live courses
- SANS exams
- CNS online education
- Leadership and networking opportunities
- Clinical guidelines

CNS Membership Growth



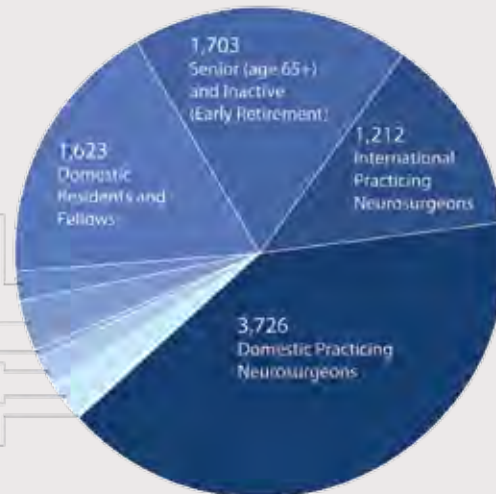
*Excludes Honorary, Senior, and Inactive members

CNS Membership Breakout



MEMBER DATA

Domestic Practicing Neurosurgeons	3,726
International Practicing Neurosurgeons	1,212
Senior (age 65+) and Inactive (Early Retirement)	1,703
Domestic Residents and Fellows	1,623
International Residents & Fellows	199
Transitional (recently completed residency)	297
Non-Neuro MDs, DOs, and PhDs	63
Nurses, NPs, PAs, and Allied Health Professionals	166
Medical Students	237
Honorary	8
Total Members	9,234



Data as of September 2016.



“Being a CNS Active Military member has been fantastic. The funding for military CME has drastically decreased, and for the CNS to give us the ability to come to the Annual Meeting makes a huge difference. It basically enables military neurosurgeons to come to the meeting when otherwise we couldn't. I know we are very thankful for that as a group.”

–Sven Hochheimer, MD,
Active Military Member

RESIDENT OPPORTUNITIES

The Congress of Neurological Surgeons currently has 1,822 resident members, accounting for 20 percent of the total membership. This includes 1,623 North American residents, fellows, and 199 International Vista resident members. The CNS is committed to providing quality educational and leadership opportunities for residents. Recent initiatives include the development of:

The CNS Leadership Fellow Program – 36 residents in ACGME approved residencies were selected to participate in seven different CNS committees for a two-year term. Our inaugural class recently concluded their term and we will continue to develop this program to optimize the opportunity for leadership development.



Leadership Fellows with Resident Committee Chair Dr. Krystal Tomei (seated, center) at the 2016 Annual Meeting



“Being a Leadership Fellow and working with the Resident Committee has been great. Not only have I been able to work on a couple of different projects, I’ve made invaluable connections. I plan to stay involved with different committees on the CNS. I’d like to continue to refine my leadership skills and bring my knowledge to whatever hospital I end up at in the future to help improve the workings of the department.”

–Jonathan Pace, MD, Leadership Fellow, Resident Committee

The Resident Roadmap – This new, CNS online career resource provides a guide for residents to navigate through residency including board study, fellowship consideration, and job application.

CNS Resident Liaison Program – Each ACGME approved resident program has selected a resident liaison who receives targeted resident-focused information and serve as a communication liaison between the CNS and their program.



A successful start to the CNS Resident Liaison Program. Pictured: David Dornbos III, MD; Sanjay Konakondla, MD; Steven Carr, MD; Christopher Graffeo, MD; Kyle Smith, MD

2016 RESIDENT COURSE HIGHLIGHTS



SNS/CNS PGY1 BOOT CAMP

SNS/CNS Boot Camp was a two-day course for intern/PGY1 neurosurgical residents that provided an opportunity for learning in the management of neurological conditions requiring surgical intervention. In 2016, the Boot Camps were offered at six different locations: Portland, Chicago, Houston, Philadelphia, Boston, and Atlanta. Attendance of residents and faculty has continued to grow.



SNS/CNS PGY4-5 BOOT CAMP

In 2016, the SNS and CNS came together to roll out the next course in the boot camp series. Held during the CNS Annual Meeting, the course targeted PGY4/5 and PGY5 residents and their educational needs. This new boot camp course focused on specific, common operative approaches and higher-level surgical management decisions. This inaugural course saw 52 residents in attendance.

3D SURGICAL ANATOMY COURSE

“Thank you for putting on such an amazing course! It was stellar in every way.”

- Anthony DiGiorgio, MD, Louisiana State University Medical Center

The 3D Surgical Anatomy Course was held in Houston, Texas, last August, and offered an all-expenses-paid educational opportunity for senior residents to enhance their neurosurgical training. Led by nationally recognized neurosurgical educators and experts, the course gave senior residents an opportunity to interact and learn from the industry's best faculty. It included both didactic 3D anatomy lectures and hands-on cadaveric dissections emphasizing evolving anatomic and imaging knowledge of white matter fiber tracts. In 2016 the course attracted 48 residents.



— CNS ANNUAL MEETING —



Advance, Adapt, Achieve

The 66th Annual Meeting of the Congress of Neurological Surgeons

September 24–28, 2016

Many CNS member volunteers, faculty, and staff work to create world-class events and activities through which the CNS achieves its scientific, educational, member services, and networking successes.

In 2016, the CNS Annual Meeting lived up to its reputation as the most relevant, engaging, and comprehensive neurosurgical educational meeting in the world.

- A renewed emphasis on clinically-focused courses and practice management issues was embraced by clinical and academic attendees alike
- More than 2,700 medical registrants attended—a 14 percent increase over 2015
- More than 16 percent of meeting attendees traveling from international countries
- 34 CNS US Active Duty Military members took advantage of the CNS special benefits such as complimentary registration and free housing
- 38 CNS Resident members received free housing
- 25 Affiliates took advantage of the opportunity to host their event during the Annual Meeting

2016 CNS Annual Meeting Distinguished Honorees



CNS Honored Guest

Edward H. Oldfield, MD, FACS



CNS Distinguished Service Award Winner

Mary Louise Spencer



CNS Founder's Laurel Award Winner

H. Hunt Batjer, MD

The CNS Annual Meeting served as a hub for other courses and symposia.

- **CNS Oral Board Exam Preparation Early Review Course:** For the first time, the course was held in conjunction with the Annual Meeting, and had a record-breaking attendance of over 90 participants
- **Tumor Satellite Symposium:** The Joint Tumor Section held their bi-annual meeting for the first time concurrently with the CNS Annual Meeting, attracting 198 medical attendees
- **ASNPC Annual Fall Meeting, presented in collaboration with the CNS:** This day-long CME meeting drew 102 registrants, an increase of 80 percent over last year
- **PGY4-5 Resident Boot Camp:** The SNS and the CNS came together to roll out the newest Boot Camp course, with 52 residents in attendance



The CNS Exhibit Hall attracted overwhelming participation from meeting attendees and generated new avenues of engagement with our exhibitors, who showcased some truly exciting new technology.



International bestselling author Victor Mayer-Schönberger signed copies of his book *Big Data* after delivering a fascinating lecture at the General Scientific Session.

The 2016 Residency Program Abstract Competition attracted neurosurgical residency programs from across the United States and abroad. Winners were:

First place

43 accepted abstracts

The John Hopkins Hospital,
Department of Neurosurgery

Second place

32 accepted abstracts

University of California, San Francisco,
Department of Neurological Surgery

Third Place

28 accepted abstracts (tie)

University of Pittsburgh Medical Center,
Department of Neurosurgery

Toronto Western Hospital,
Division of Neurosurgery



The CNS continues to advance the best in new science, with the abstract program drawing over 1,300 submissions. Featured were oral presentations, posters presentations, digital posters, and new rapid-exchange oral presentation sessions.

Abstract Awards

Pascal O. Zinn, MD, PhD

National Brain Tumor Society Mahaley Clinical
Research Award

Silky Chotai, MD

Julius Goodman Resident Award

Gavin P. Dunn, MD, PhD

American Brain Tumor Association Young
Investigator Award

John Frederick Burke, MD, PhD

Depuy Synthes Award for Resident Research
on Spinal Cord and Spinal Column Injury

Jennifer L. Quon, MD

Columbia Softball Charity Award

Dimitris G. Placantonakis, MD, PhD

Preuss Award

Prashant Chittiboina, MD, MPH

Integra Foundation Award

Hormuzdiyar H. Basenbrock, MD

Stryker Neuro-Oncology Award

Noorulain Iqbal, MD

Sherry Apple Resident Travel Scholarship

Aditya Vedantam, MD

Ronald R. Tasker Award

Luis E. Savastano, MD

Galbraith Award

Imran Noorani, MD, MRCS

BrainLab Community Neurosurgery Award

Kimon Bekelis, MD

Sam Hassenbusch Young Neurosurgeon Award

Aaron E. Bond, MD, PhD

Stereotactic and Functional Neurosurgery
Resident Award

Hormuzdiyar H. Dasenbrock, MD

Synthes Cerebrovascular Award

Aurel Hasanbelliu, MD

Synthes Skull Base Surgery Award

Andrew E. Sloan, MD, FACS

Journal of Neuro-Oncology Award

Abigal J. Rao, MD

Depuy Synthes Award for Resident Research
on Brain and Craniofacial Injury

Scott L. Zuckerman, MD, PhD

ThinkFirst Injury Prevention Research Award

The SANS Challenge

Forty-three resident programs participated in the preliminary online timed challenge and eight programs qualified to be a part of the live challenge at the Annual Meeting.

SANS Challenge Champions:

First place

University of Texas Health Science Center:

Brad Dengler, MD;
Shane Hawksworth, MD;
Jeremiah Johnson, MD

Second place

University of Nebraska Medical Center:

Linden Fornoff, MD; Andrew Gard, MD;
Jordan Lacy, MD

Third Place

University of Kansas Medical Center:

Jeremy Peterson, MD; Kyle Smith, MD;
Tim Stepp, MD



Congratulations and thank you to **Gary R. Simonds, MD**, recipient of the SANS Service Award, for his contributions to SANS, dedication to resident education, and outstanding service as SANS Challenge host.

Three CNS Innovation Fellowships were awarded for 2016-17. These awards were granted to support future neurosurgical educators in pursuit of new training modalities, including the development of neurosurgical simulators, novel web-based technologies, or other surgical training innovations.



Ricard Komotar, MD, presents fellowships to (from left to right) Jordan Amadio, MD, Emory University; Kimon Bekelis, MD, Thomas Jefferson University Hospital; and Cameron M. McDougall, MD, University of Texas Southwestern.



The Congress warmly welcomed Continental Association of African Neurosurgical Societies (CAANS) as its 2016 International Partner.

— NEUROSURGERY® PUBLICATIONS



2016 has been a banner year for NEUROSURGERY® Publications. The CNS family of publications experienced many milestone accomplishments due to the dedication of CNS leadership, the editorial staff, and editorial board members who worked together to make the specialty better.

- Brandon J. Fiedor joined NEUROSURGERY® Publications as managing editor. Prior to joining the CNS, Brandon served as the assistant managing editor for the *Journal of Vascular Surgery*.
- The editorial office staff was restructured to facilitate growth, ensuring that it will best serve the neurosurgical community in the years to come.



Neurosurgery received its highest Impact Factor (IF) to date in June 2016: 3.78! This marks the second consecutive year the journal has attained a record high. Other accomplishments include:

- More than a 12 percent increase in journal submissions from 2014.
- Publication of two Joint Guidelines Committee endorsed and CNS sponsored guidelines: Nonfunctioning Pituitary Adenomas (October 2016), and Positional Plagiocephaly (November 2016).
- Publication of the supplement *Laser Interstitial Thermal Therapy in Neurosurgery*.



Operative Neurosurgery (ONS) continues to progress as a fully independent title with a unique scope and presence. Since being granted a separate ISSN in March 2014, ONS has:

- Been accepted for indexing in Thomson Reuter's Web of Science™, and has applied



for an initial Impact Factor (IF).

- Petitioned the US National Library of Medicine® (NLM) for indexing in MEDLINE®/PubMed.
- Launched a separate peer review and submission site exclusively for *Operative Neurosurgery* content.
- Welcomed a fully independent editorial review board representing some of the leading researchers and clinicians in the neurosurgical subspecialties.
- Expanded to bimonthly publication.

The realization of **The Surgeon's Armamentarium** (TSA) has come full circle, with the editorial review board playing a central role in the preparation and continued maintenance of this digital content delivery search utility. The second beta version was unveiled to attendees at the TSA booth during the 2016 CNS Annual Meeting in San Diego, and was a smashing success. Over the course of the

meeting, journal staff interacted with a number of attendees who walked away thrilled with the product. The TSA formally launches in February. Access is free for all CNS members and non-member journal subscribers.



THE SURGEON'S
ARMAMENTARIUM

The **Congress Quarterly** magazine continues to be a highlight publication of the CNS. Under the leadership of Editor Gerald A. Grant, MD, the *cnsq* expanded its focus in 2016 to areas "outside the box" and highlighted the importance of taking time to be expressive, creative, and to think. *Telling Stories: The Literary Neurosurgeon and The Intersection of Art + Neurosurgery* brought scores of comments and compliments across social media.

The end of 2016 saw Dr. Grant stepping down from his tenure and Dr. Elad I. Levy taking over the editorial reins.

Clinical Neurosurgery continues to be developed under the guidance of Editor-in-Chief Dr. Krystal L Tomei. The 65th Annual Meeting of the Congress of Neurological Surgeons was held in New Orleans, Louisiana, from September 26 to 30, 2015. Volume 63 of *Clinical Neurosurgery*, published in August 2016, represents the official compilation of the invited scientific manuscripts from the plenary sessions, an interview with the CNS President Dr. Nathan R. Selden, and biographic and bibliographic information of the Honored Guest, Dr. Kim J. Burchiel.

— EDUCATIONAL DIVISION —

This past year has been an exciting and productive year for the CNS Educational Division.

- A more modern and streamlined curriculum has been implemented that includes non-traditional modalities of education.
- Standardized objective and validated measures have been employed to appraise the progress and skill levels of our participants.
- The CNS has demonstrated a statistically significant improvement in knowledge levels and skill dexterity after attendee participation in CNS educational activities.
- Adopted strategies this year include integration of the educational modules across the CNS product line, linking the CNS to other societies and with the journal.

2016 COURSE CALENDAR

- The **CNS Spine Complications Course** kicked off January 2016 in Park City, Utah, with the theme *Crossing the Chasm, Critical Peer Review for Spine Surgeons*. Set in an intimate environment, this unique course allows a small group of participants to present their spine complications in an open discussion format and receive feedback and insight from colleagues and faculty. CME provided: 24 AMA PRA Category 1 Credits™.
- The 2016 **CNS SANS MOC Board Review Course** fulfills the ABNS MOC Part II requirement for self-assessment and helps to prepare for the ABNS MOC Cognitive exam using resources from SANS Lifelong Learning. The course drew over 90 participants to Orlando, Florida. CME provided: 13.75 AMA PRA Category 1 Credits™ (Plus, an optional 10 AMA PRA Category 1 Credits™).



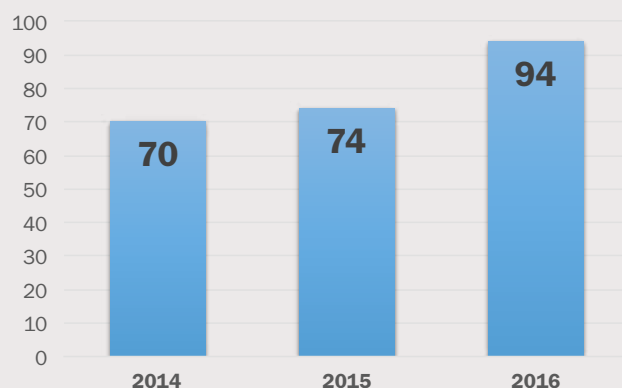
Oral Board Exam Prep Course

“An intensive course taught by leaders in our field who have all passed the oral boards. It serves as both a great litmus test for someone who is just beginning board review as well as for solidifying concepts in the final stages of preparation.”

- Shahid Nimjee, MD

- The **CNS Oral Board Exam Preparation Early Review Course** grew a significant 27 percent over 2015. This success is the result of a thoughtfully designed multi-pronged strategy to help neurosurgeons prepare for the often intimidating process of taking the oral boards.
- In August, a live webinar was conducted where examinees met Oral Board faculty. During the webinar each subspecialty faculty member gave their top ten lists of references and areas of focus.
- In September, a dynamic live one-and-a-half-day course was held at the CNS Annual Meeting, consisting of case presentations by national neurosurgical leaders along with round table discussions on test-taking strategies.
- In October, seven evening webinars were held on every subspecialty of neurosurgery the week prior to the Oral Boards.

Oral Board Course Attendees



11,758.5 CME Credits Claimed Through the CNS

The CNS is the top provider of CME for neurosurgeons

Neurosurgeons participating in the MOC process claimed more CME hours from the CNS than from another single source.

The CNS was the first neurosurgical organization to receive ACCME's highest level of accreditation, Accreditation with Commendation. We are proud to be among this elite group of committed educators.



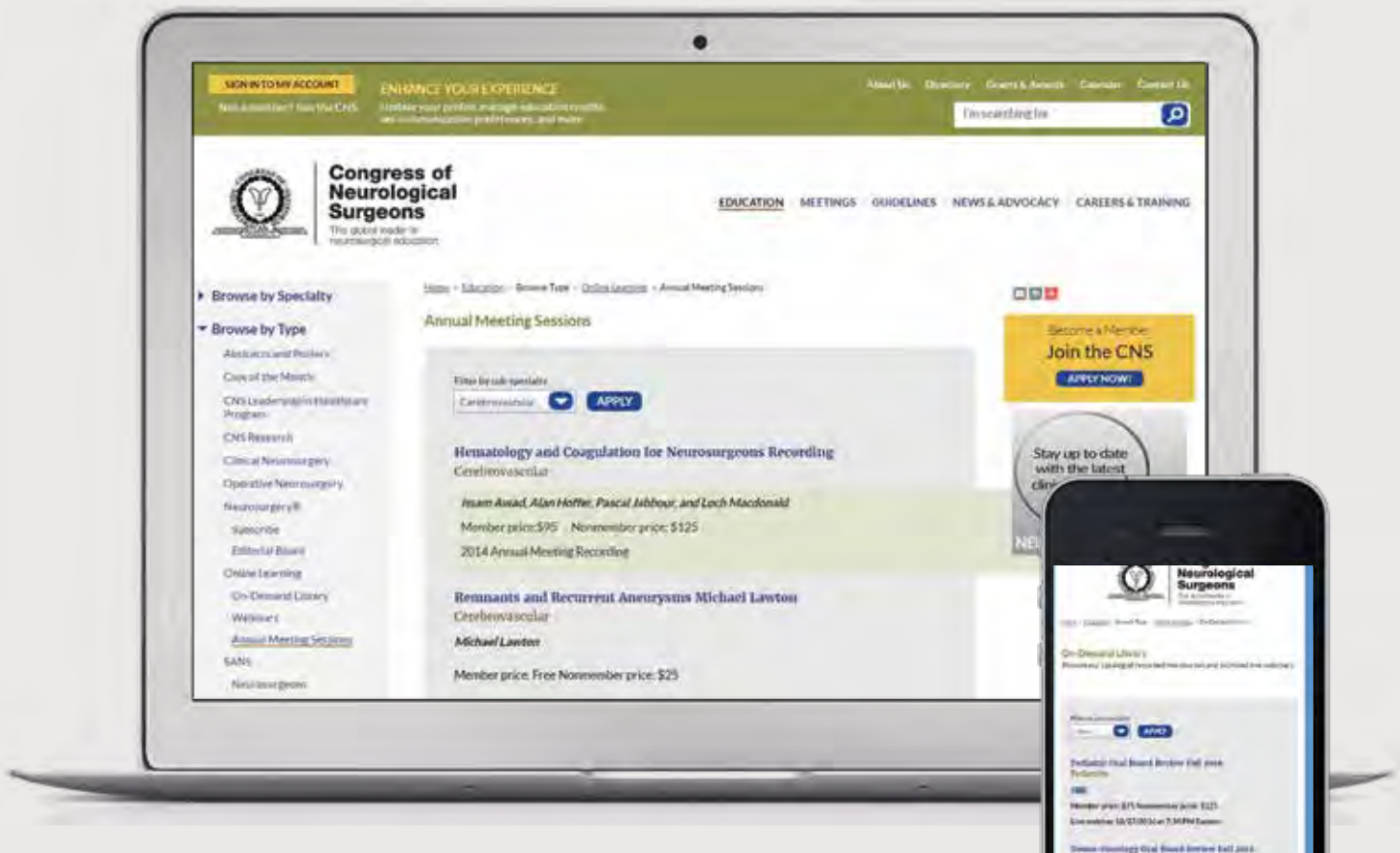
179
CME Activities

159
Online courses/
on demand
products this
fiscal year

3
Live
Courses

17
SANS
Exams

— ONLINE EDUCATION AND ENGAGEMENT —



Online Education continues to provide a convenient way for neurosurgeons and residents to gain the necessary skills to improve patient care and prepare for exams. Online education saw dramatic growth as it helped to guide CNS membership into a dynamic, increasingly electronic future.





- **Four new limited-time bundles** were created to provide an efficient way to earn CME while studying specific areas of interest.

- **Cerebrovascular Surgery Bundle**
- **Practice Management Bundle**
- **Spinal Trauma Bundle**
- **Trauma: Brain Injury Bundle**

- **Quality Science Curriculum (QSC)**, a new online tool for residents was rolled out. The QSC includes ten narrated presentations with companion pre- and post-test question assessments that train residents on the nonclinical ACGME milestones they need to learn.

- **Residents received complimentary access to CNS online education.** In 2016, 1,680 residents accessed 138 on demand products (online and archived webinars), and 1,244 residents attended live webinars.

Live Webinars have enjoyed tremendous popularity and growth in attendance, and the program was bolstered with 25 new and unique offerings.

- **Oral Boards Study Tips Webinar:** A summary of the popular full Oral Board Webinar Series (seven webinars that are offered in the spring and fall), was available for the Oral Board Early Preparation Course participants.
- **Joint Webinars:** Four new webinars co-hosted with the Pain Section, Pediatric Section, American College of Emergency Physicians (ACEP), and Zeiss were presented throughout the year. Look for more successful collaborations in 2017.
- **Endoscopic Webinar Series:** Parts one and two of the seven-part webinar series were broadcasted in June and November. The remaining five will be held throughout 2017.



Online education may be accessed at cns.org/education.

— ONLINE EDUCATION AND ENGAGEMENT —

continued



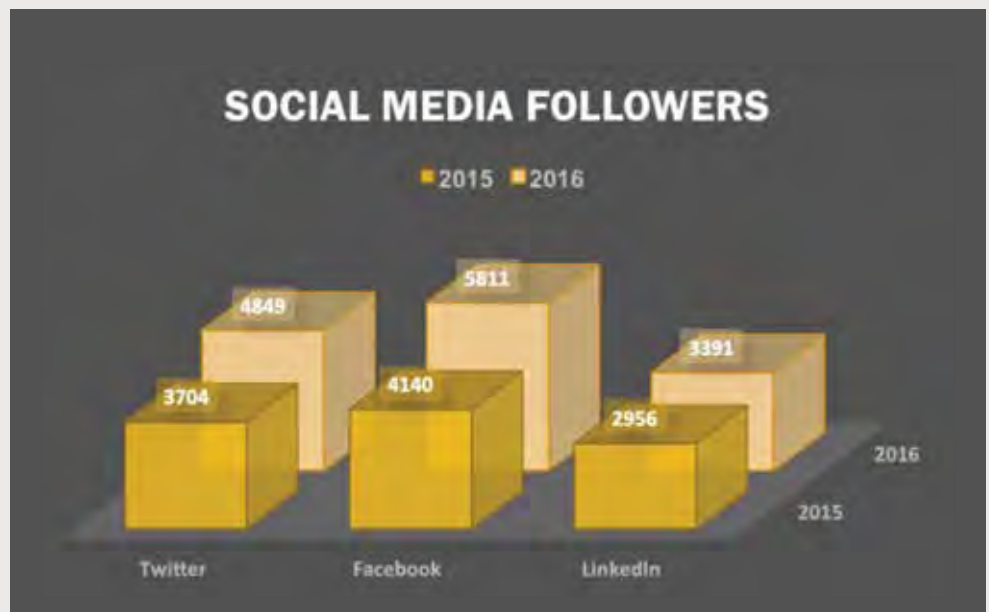
CNS members and nonmembers alike engage in CNS online activities outside of educational courses. Platforms such as Case of the Month, Neurosurgery Watch, and CNS social media accounts (Facebook, Twitter, LinkedIn) provide a virtual community where participants can interact and share ideas.

Case of the Month continues to be one of the CNS's most popular online educational tools, providing a forum for discourse regarding the management and treatment of ordinary and extraordinary cases. Monthly cases may be viewed at cns.org/casemonth.

Neurosurgery Watch gives neurosurgeons an easy way to stay up-to-date with the latest clinical findings. Key points of significant papers from over 50 journals are summarized monthly by a panel of member volunteers. Summaries can be found at cns.org/neurosurgerywatch.

Social Media grew exponentially in 2016. Twitter following (@CNS_Update) grew 31 percent, Facebook grew 40 percent, and LinkedIn grew 15 percent. CNS followers enjoy sharing and reading about upcoming events, CME

opportunities, neurosurgery news, journal articles, patient success stories, inspirational quotes, and more. On Twitter, CNS Annual Meeting attendees shared their personal experiences, photos, and videos in record numbers.

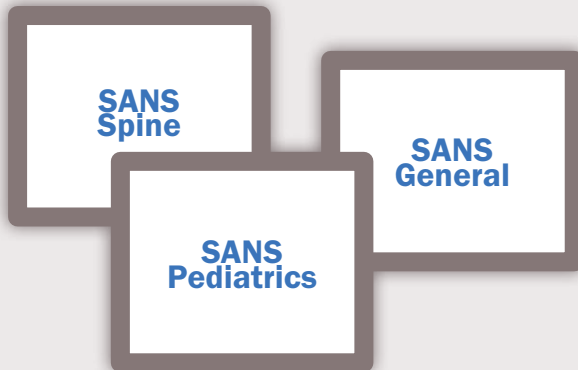


— SANS LIFELONG LEARNING —



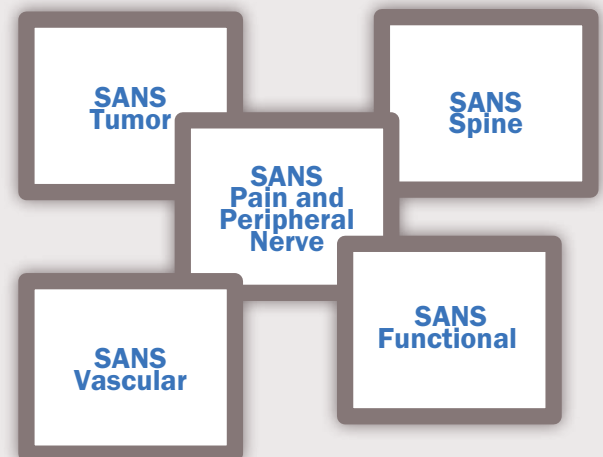
SANS Lifelong Learning continues to be the number one online self-assessment tool. It is at the forefront of assisting neurosurgeons, residents, and physician assistants to work better together by providing meaningful ways of self-assessment.

- 250-question exams provide immediate feedback, mobile-friendliness, 24 AMA PRA Category 1 Credits™, and an interactive interface
- Fulfill the ABNS MOC Part II requirement



The new SANS Modules delivers on the vision to embrace the concept of a milestones-based curriculum and to transform SANS. Participants will configure their own SANS exam using seven subspecialty modules, five of which are already available, to create a more personalized experience. This tightly-focused modular format (guided by senior advisors in each subspecialty):

- Consistently identifies and assimilates developments that can change clinical practice
- Is mobile friendly on all iOS and Android devices
- Offers targeted 100-question exams that help neurosurgeons evaluate their subspecialty knowledge
- Provides 10 AMA PRA Category 1 Credits™
- Support residents who are preparing to take the ABNS Written Board Exam



10,361 CME were claimed through the CNS using SANS products in 2016.

The new **SANS Institutional License Platform** helps residency programs across the US by offering critical support in customizing residents learning curriculum and primary exam preparation, including the new Quality Science Curriculum.

Passing the Torch

The CNS welcomes **Nader Pouratian, MD**, as the new SANS Committee Chair and thanks Ashok Asthagiri, MD, for serving from 2012-2016 as SANS Committee Chair.



— WASHINGTON REPORT —

Through advocacy, policy development, and public relations, the AANS/CNS Joint Washington Committee and Washington Office work vociferously to defend and protect the ability of neurosurgeons to practice medicine freely, and help to ensure the continued advancement of the specialty of neurological surgery. 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. As a result of these interactions, organized neurosurgery has achieved a variety of advocacy successes.

Adopting a New Washington Committee Strategic Plan

The CNS spent a considerable amount of energy developing a strategic plan for the Washington Committee. At the end of this process, the CNS adopted new mission and vision statements and a set of initial strategic goals that are based on an analysis of the strengths, weaknesses, opportunities, and threats facing the specialty of neurological surgery.

Fighting for Fair Reimbursement

The CNS has been on the front lines helping to monitor the “Medicare Access and CHIP Reauthorization Act” (MACRA) legislation through the implementation process to ensure that CMS gets this right and develops the new Medicare physician payment system as directed and intended by Congress.

- The CNS has aggressively addressed other third-party payer coverage policies, which limit reimbursement for many common neurosurgical procedures.
- The Coding and Reimbursement Committee, along with representatives from the National Quality Council (NQC), Joint Guidelines Committee, the Joint Sections and Washington Committee work together to respond to these coverage issues to provide a balanced assessment of the current literature and experience with procedures under review.
- The CNS, working with the CRC’s Rapid Response Teams and the Council of State Neurosurgical Societies (CSNS), established a quarterly information tool, which informs neurosurgeons about significant local coverage policies, allowing our members to track and respond to these to ensure that neurosurgical patients get access to the full range of treatment options for neurosurgical care.



Washington Committee chair, Shelly D. Timmons, MD, PhD, with Rep. Larry Bucshon (R-Ind.) at the Alliance of Specialty Medicine’s 2016 legislative conference in Washington, DC.



Regulatory Relief

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

- Continuing to oppose Medicare's "two-midnight" inpatient-hospital policy due to concerns about increased physician hassles and audit exposure, as well as increased beneficiary financial burdens.
- Promoting advocacy efforts that helped secure the inclusion of a provision in MACRA, which suspended the Recovery Audit Contractors (RAC) program related to the two-midnight rule for an additional two years. Ultimately, CMS announced its plans to scrap the program altogether and allow hospitals to seek corrective reimbursements.
- Successfully advocated for changes to Medicare's existing Electronic Health Record (EHR) Incentive Program, otherwise known as meaningful use (MU).

Reforming the Reform

While the Affordable Care Act (ACA) is the law of the land, the CNS has not ceased in advocating for changes to this landmark health care reform law.

- A top priority remains abolishing the Independent Payment Advisory Board (IPAB). In leading the Physician IPAB Repeal Coalition, the CNS was instrumental in getting funding for IPAB eliminated for FY 2016 as part of the \$1.15 trillion comprehensive spending and tax extenders package (Public Law 114-113).
- To ensure continued forward progress with medical innovations, the CNS supported the repeal of the 2.3 percent excise tax levied on the sales of medical devices.
- Due in part to the advocacy efforts of the CNS, the \$1.15 trillion comprehensive spending and tax extenders package (Public Law 114-113) included a two-year suspension of the 2.3 percent excise tax.

Graduate Medical Education

An appropriate supply of well-educated and trained physicians is an essential element to ensure access to quality health care services for all Americans. Through the continued advocacy of the CNS, policymakers are beginning to understand that there are significant shortages of physicians in both primary and specialty care.

- The CNS worked with the Association of American Medical Colleges (AAMC), the Alliance of Specialty Medicine and others, to successfully advocate for the introduction of legislation to provide additional Medicare funding for graduate medical education (GME). This includes the introduction of the "Resident Physician Shortage Reduction Act (H.R. 2124/S. 1148) and the "Training Tomorrow's Doctors Today Act," (H.R. 4774). Momentum continues to grow for both bills, which would expand Medicare funding for an additional 15,000 slots over a five-year period.
- Neurosurgery Blog hosted a graduate medical education (GME) awareness month. The CNS planned this initiative around Match Day, March 18, 2016. Dubbing March as "GME Month," organized neurosurgery launched the hashtag #gmemonth on Twitter. Neurosurgery Blog and other communications outlets hosted multiple guest blog posts from Atul Grover, MD, executive vice president of the AAMC, and Rep. Joe Crowley (D-N.Y.), vice chair of the House Democratic Caucus and a member of the powerful Ways and Means Committee.

— WASHINGTON REPORT —

continued

Neurosurgery Advocates for Trauma Care

Working to improve the nation's trauma and emergency care systems, the CNS participated in several Congressional briefings:

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



Geoffrey T. Manley, MD, PhD, past chair of the CNS Section on Neurotrauma and Critical Care testifies at a U.S. House Energy and Commerce Oversight Subcommittee hearing on concussions.



CNS past president, P. David Adelson, MD (on right), represents organized Neurosurgery at a Congressional briefing focusing on pediatric trauma. He is pictured here with Rep. Richard Hudson (R-N.C.), the chair of the Congressional Pediatric Trauma Caucus.

Communications Outreach

The Washington Office's traditional media/communication efforts include Op-eds, letters to the editor, radio "tours" and desk side briefings with reporters from the *Wall Street Journal*, *Washington Post*, CBS, NBC, *Politico*, and others. Since December 2012, the Washington Office has generated 126 traditional media hits reaching an audience of nine million. In addition to traditional media, the CNS digital media platforms continue to see a significant expansion and have garnered over 170 million individual impressions. Furthermore, these media platforms have amassed a subscription audience of 65,000. These communication tools include:

- *Neurosurgery Blog: More Than Brain Surgery*, a web-based opinion and perspective column, through which CNS offer 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. 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, LinkedIn, Tumblr, and Google+ sites help drive health policy influencers to information on *Neurosurgery Blog* and the Twitter feed, while also spotlighting CNS news-making successes and initiatives.

— GUIDELINES PROGRAM —

As a leader in education and innovation, the CNS continues to advance the practice of neurosurgery through the development of high-quality, evidence-based clinical practice guidelines. With an advanced in-house infrastructure that includes robust methodological processes, the Guidelines Department supports volunteers with all aspects of the development process, from topic refinement and development of clinical questions to publication and dissemination.

2016 Program Highlights

With significant advances being made in neurosurgical research, there is an increasing amount of literature from which high-quality clinical practice guidelines are developed. The CNS has risen to meet the challenge in the following ways:

- The number of guidelines the CNS publishes has increased to three or four per year
- There are nine new guideline topics currently in development

- Recently published topics include Nonfunctioning Pituitary Adenoma and Positional Plagiocephaly
- Literature reviews are conducted for each guideline at least every five years to ensure that the guidelines remain current

Dissemination and Implementation Initiatives

In addition to producing high-quality clinical practice guidelines, the CNS is committed to the dissemination and implementation of these important guidelines by:

- Partnering with other organizations, such as the American Academy of Pediatrics (which recently published its Statement of Endorsement in the November 2016 issue of *Pediatrics*), to promote guidelines on relevant topics
- Developing cutting-edge educational material (for continuing medical education) based on its high-quality guidelines

- Educational update sessions, such as the recent popular guidelines sessions held at the 2016 Annual Meeting: Guidelines for the Management of Thoracolumbar Fractures and Guidelines for the Management of Brain Metastases

A CNS Member Benefit

CNS's evidence-based guidelines are consistently cited as one of the top CNS Member benefits, and are recognized for their tremendous value to neurosurgical providers. In a letter published in the September 2016 issue of *Neurosurgery*, a survey of CNS members was conducted on the Guidelines for the Management of Acute Cervical Spine and Spinal Cord Injuries. Seventy-two percent of respondents (varying by demographics such as age, practice setting and practice location) were aware of these guidelines. Furthermore, data in a recently published study by Brooks et al., suggests that CNS guidelines positively impact physician practice and lead to a decrease in use of methylprednisolone for acute spinal cord injury.

CNS member volunteers are essential to the development of guidelines. They serve as the leading clinical experts on task forces that develop guidelines in a variety of neurosurgical topic areas.



“As a practicing academic neurosurgeon, participating in and leading a guidelines task force has been a tremendous opportunity to comprehensively dissect and analyze the literature. Understanding the existing literature in depth has been directly applicable to my neurosurgery practice as a clinician, and has also enabled me to identify deficiencies in the literature that I can strive to address as an academic neurosurgeon.”

— Dr. Manish Aghi, chair of the Nonfunctioning Pituitary Adenoma Guideline Taskforce

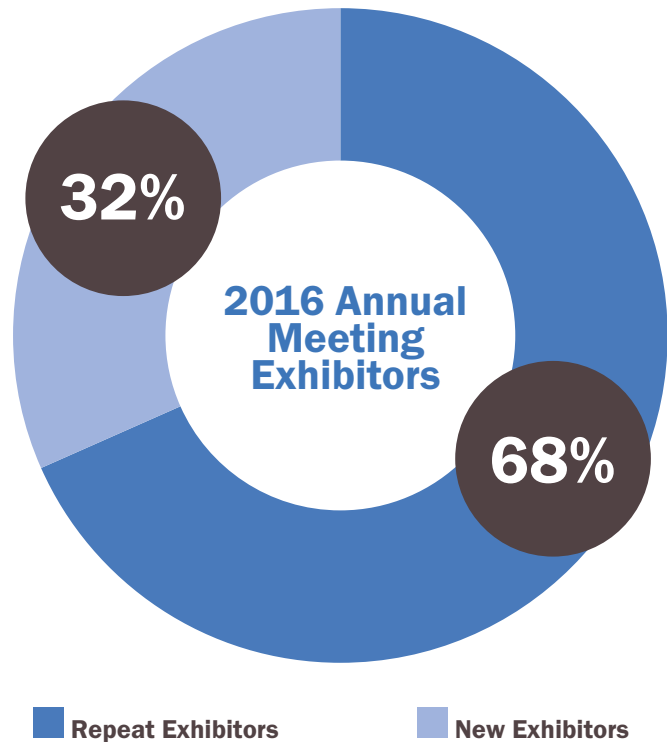
— CORPORATE DEVELOPMENT —

In an increasingly competitive and challenging healthcare environment, it is a testament to the CNS's dedication to the field of neurosurgery that our corporate partners program continues to grow, both in terms of the number of companies participating and the total value of that support. The CNS is proud of our partnership with the leading companies in neurosurgery and the opportunities collaboration provides to deliver products and solutions that help our members deliver better care and advance the specialty.

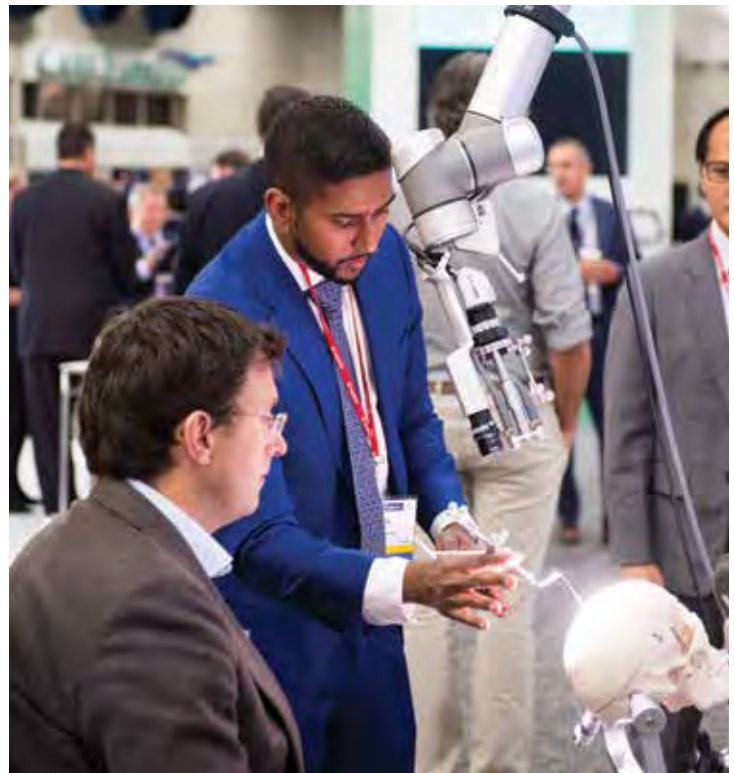
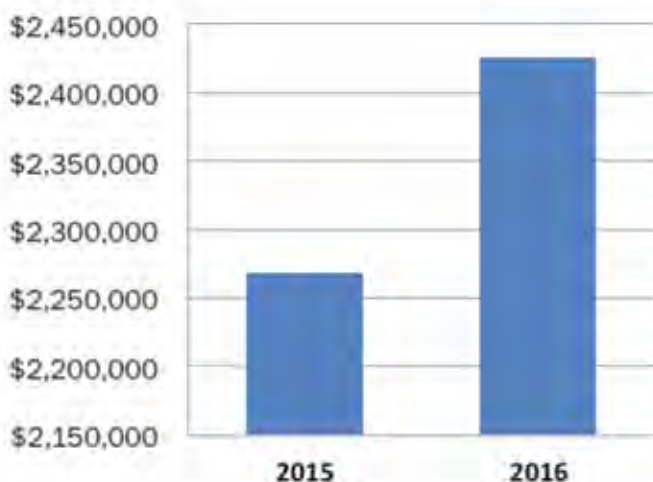
In 2016, collaborations with industry launched two new education programs.

- **Acute Ischemic Stroke Care Multi-specialty Webinar**, in partnership with the American College of Emergency Physicians, and educational grant support from Medtronic and Penumbra
- **CNS Leadership in Healthcare Course** was piloted with the support of an educational grant from Medtronic

In 2016, the CNS experienced outstanding growth at the Annual Meeting, with 16 companies increasing their grant, sponsorship, and advertising support, and 54 new companies joining the Exhibit Hall. Increased grant support for Practical Courses allowed the CNS to provide more hands-on learning opportunities for all attendees and allowed many residents to attend certain courses free of charge.



CNS Corporate Revenue



— INDUSTRY ALLIES COUNCIL —

The CNS Executive Committee gathered with leaders of our 11 Industry Allies Council (IAC) partner companies at the Annual Meeting to discuss the future of our specialty. As always, the CNS is grateful for the ongoing support of our IAC partners as well as for their insights on issues facing our specialty and the emerging trends that are impacting neurosurgical practice. Only by continuing to come together and engage in open dialog can the CNS and our corporate partners develop truly mutually beneficial partnerships that leverage both organizations' core competencies for the benefit of our specialty and our patients.

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— CNS LEADERSHIP IN HEALTHCARE PROGRAM —



Succeeding in today's complicated healthcare environment requires more than just surgical skill and clinical expertise. Neurosurgeons must also speak the language of hospital decision makers and develop skills to lead teams, or they risk surrendering control of their practice to those who step up as leaders.

In 2016, leaders on the CNS Executive Committee explored these challenges as part of an environmental scan with Medtronic. Both organizations recognized that the dynamics of today's healthcare environment require more of a neurosurgeon than clinical expertise and surgical skill. The alignment of vision, synergy between the organizations'

resources, and a shared focus on moving neurosurgery forward led the organizations to the creation of a new pilot course on leadership in healthcare. The course empowers junior attending neurosurgeons with the information and skills needed to shape their own careers and lead their departments, groups, hospitals, and health systems in a time of rapid change.

The pilot course, jointly funded by Medtronic and the CNS, was held May 14–15, 2016, in Rosemont, Illinois. A group of 13 junior attending neurosurgeons, each of whom was nominated by leaders in organized neurosurgery, gathered for a two-day intensive training course that covered a breadth of leadership skills and business acumen critical to a neurosurgical leader.

During a follow-up session at the CNS Annual Meeting, each of the participants shared their progress to date on these challenges, provided feedback, and ideas for moving forward. Attendee evaluations and participant feedback for this new program have been outstanding, with 12 out of 12 respondents indicating they would recommend the program to a colleague.

The CNS Leadership in Healthcare Course is unlike anything available in our specialty today and we are excited about the impact our leadership fellows are going to have on their home institutions, the CNS, and the specialty as a whole. The next course is scheduled for May 19-20, 2017.

— FINANCE —

Statement of Financial Position for 12 Months, ending August 31, 2016

2016 Assets

	8/31/16	8/31/15	Increase/ (Decrease)
CNS Cash	\$6,821,462	\$4,404,397	\$2,417,065
Accounts Receivable	202,463	141,125	127,339
PrePays & Deposits	701,462	764,837	4,524
Beneficial Interest	390,000	390,000	0
Due from Related Entity	16,947	16,650	297
Investments	15,176,409	13,543,028	1,633,382
Equipment & Software, Net	1,187,229	885,614	301,615
Joint Section Assets, Net	3,417,463	3,415,100	2,362
Total Assets	27,913,435	23,560,751	4,418,685

2016 Liabilities

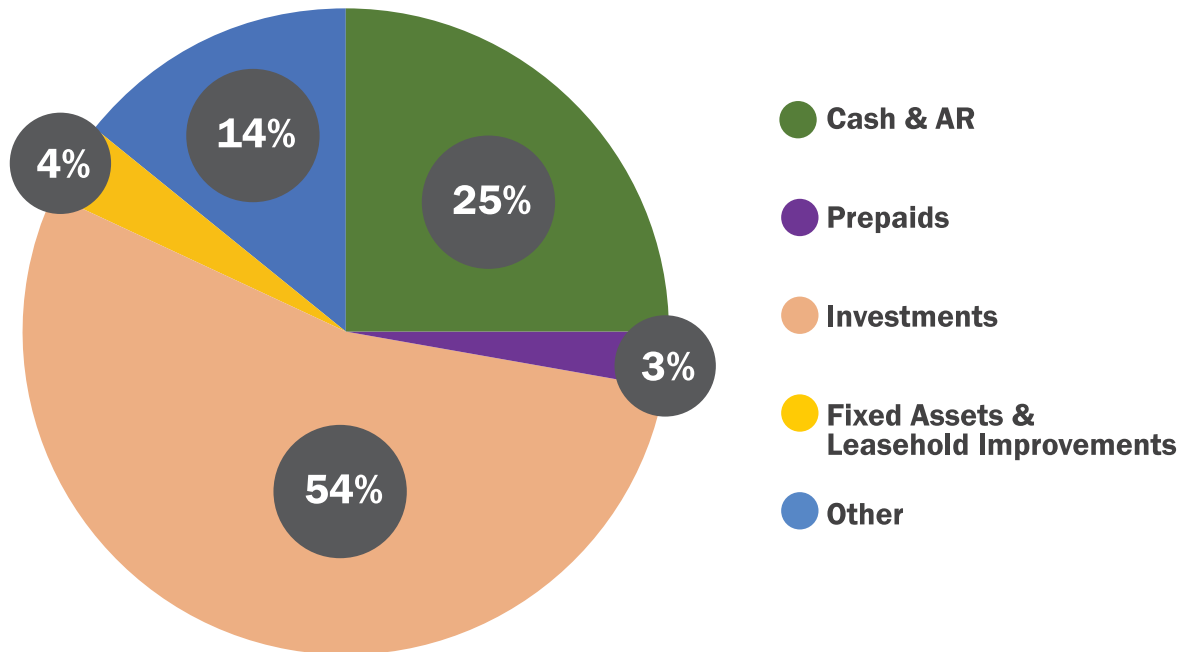
Accounts Payables	397,517	741,316	(343,799)
Deferred Rent	224,315	0	224,315
Accrued Expenses	627,927	396,561	231,366
Deferred Revenue-Dues	845,675	752,299	93,376
Deferred Revenue-Annual Meeting	3,771,548	3,213,791	557,757
Deferred Revenue-Journal	2,130,953	718,809	1,412,143
Deferred Revenue-Other	122,986	7,500	181,487
Meeting Mgmt: DSPN, ASSFN, & Tumor	378,311	7,693	370,618
Net Payable - Foundation	92,328	15,311	77,017
Total Liabilities	8,591,560	5,853,281	2,804,281

Net Assets

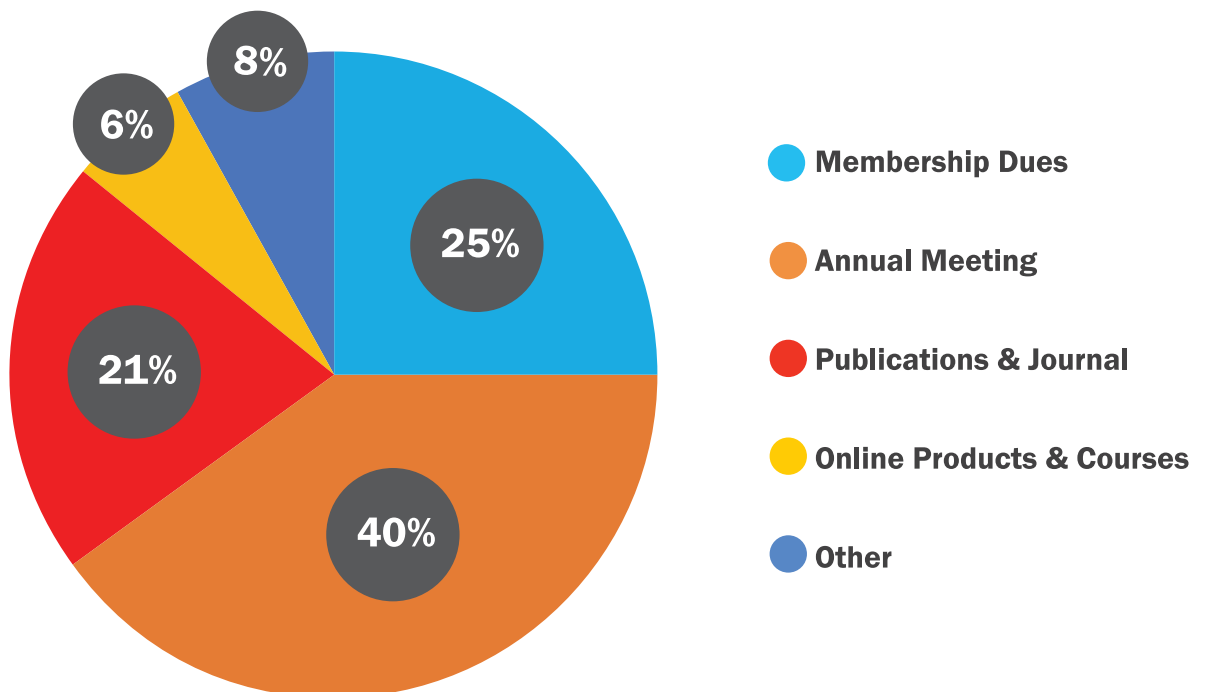
Unrestricted	18,906,875	17,292,471	1,614,405
Temporarily Restricted	25,000	25,000	0
Permanently Restricted	390,000	390,000	0
Total Net Assets	19,321,875	17,707,471	1,614,405
Total Liabilities and Net Assets	27,913,435	23,560,751	4,418,685

— FINANCE —

Assets as of August 31, 2016



FY16 Revenue



— CNS FOUNDATION, INC —



“ I was absolutely elated to receive the NINDS/CNS Getch Scholar Award. Not only has this award provided me added inspiration to continue my research efforts, but as a result of the award, I’ve been able to advance the understanding of the mechanisms underlying why so many patients die suddenly and unexpectedly from epilepsy.”

—Brian Dlouhy, MD

As the CNS Foundation continues to refine its vision and establish its role in advancing neurosurgical practice, the organization has proven this past year that we truly are better when we work together with other organizations to support our shared goals.

Through an unprecedented partnership with the Foundation for the National Institutes of Health (FNIH), the CNS Foundation was able to award the first ever NINDS/CNS Getch Scholar K12 Award in 2016 to Dr. Brian Dlouhy, assistant professor and pediatric neurosurgeon at the University of Iowa.

With his two-year award, Dr. Dlouhy is working to advance our understanding of the effective connectivity between the amygdala and the brainstem, brainstem sites involved in control of breathing during seizures, and brainstem and cortical regions involved in dyspnea.

The Foundation Board of Directors is confident that the Getch Scholar award will significantly impact our specialty and have established a fund within the Foundation to support the

award for future years, with hopes of ultimately granting the two-year award on an annual basis. The Foundation has also collaborated extensively with the Joint Sections in 2016. The Foundation’s Board of Directors is grateful to have collected \$45,000 in grants from the Sections this year, not only to help support the new Getch Scholar award fund, but to support critical guidelines initiatives such as guidelines development and training, and guidelines methodology training for surgeons who will lead these workgroups in the future. These new grants, along with continued growth in individual contributions from our members and a successful fundraiser during the 2015 Annual Meeting, helped the CNS Foundation add more than \$107,000 in revenue to its general and other funds in 2016, and contributed to a 38 percent growth in net assets for the year.

With this financial success and the continued growth of these partnerships, the CNS Foundation is poised to make a significant impact on the quality of neurosurgical care and thus enrich the lives of patients and families around the world.



— 2017 PRESIDENT —



Alan M. Scarrow, MD, JD

President, Congress of Neurological Surgeons

As we move into the new year, the leaders and staff of the CNS want you to know that we truly value your membership in our organization. Without your attendance at our meetings and conferences and your support of our publications and internet offerings, the Congress would not exist. Our vision statement of being the premier educational organization in neurosurgery is more than just words. A vision statement that does not drive the behavior of the organization's leaders and staff is a waste. Our expressed intent is to continually provide you with innovative education that helps you become the best neurosurgeon you can be.

After a number of member surveys and much deliberation among the executive committee members and staff, we have put together an aggressive three-year strategic plan that we hope will exceed your expectations for neurosurgical education. Enormous effort has been put into our strategic plan, which will guide how we act, adapt, and innovate to achieve the greatest relevance in neurosurgical education. We are making a high priority of anticipating change and not simply reacting to it. Over time you will notice some old courses and publications going away and new ones taking their place. Many of these we think you will like, some of them you may not. That is the nature of innovation—if we're not failing once in a while then we're probably not being very innovative. In 2017, we will focus on several new educational offerings. The CNS will offer one

new live meeting and expand another live program that was started in 2016. The new meeting will be a regional course focused on the care of stroke patients and will be piloted this May in Chicago. The meeting will not be exclusively for neurosurgeons but will also include neurology, neuroradiology, intensivists, ER physicians, advance practice providers, nursing, EMS, paramedics, and hospital leadership. This new course is a result of two important components: (1) feedback from member survey indicating a desire for more team education that would improve the performance of an entire system of care; and (2) an innovative idea from former CNS Executive Committee member Bernard Bendok on how to operationalize such a meeting. The CNS staff and leadership are excited about this new offering and are looking forward to assessing how the meeting is received by local providers in and around Chicago.

The second initiative, the CNS Leadership in Healthcare Program, is focused on practicing neurosurgeons who are within five years of having completed their residency. This course was initially designed from member feedback asking for education to help them impact the organizations where they work. From that initial request, a series of innovative concepts were developed by CNS EC members and staff during discussions with corporate leadership from Medtronic. The subsequent collaboration resulted in the Leadership in Healthcare Program, which was piloted in May 2016, and drew 13 neurosurgeons. The feedback was unanimously positive, and attendees went back to their home institution armed with a new set of skills and the ability to make a significant impact on the performance of their health system. The two-day course is scheduled to be held again in May 2017.

Finally, as you know, each year the CNS works very hard to put on the best annual meeting in neurosurgery. Year in and year out, feedback from our members describe our Annual Meeting and journal, *Neurosurgery*, as the two most valuable components of their membership. This stems from the high-quality educational content and one-of-a-kind experiences the Annual Meeting provides as well as best-in-class neurosurgical research published in our journal. This year you will also see more cross promotion of the journal at the Annual Meeting. We plan to celebrate and award the "Papers of the Year," outstanding articles published in *Neurosurgery* in each of the subspecialties, and a special award for the "Innovation of the Year" as selected by neurosurgical peers. We think this will add a bit of excitement to the meeting as we honor the hard work of some of the best people our specialty has to offer. We encourage you to submit your papers for publication in *Neurosurgery* and look forward to celebrating the winners October 8–11, 2017, in Boston.

Once again we thank you for your membership and support of the CNS. We know there are many options for your time and attention when it comes to neurosurgical education. It is our commitment to you, our members, that we will do our very best to make sure you have the most effective, innovative and satisfying educational experiences at our courses and in our publications. I look forward to serving you this year!

— MESSAGE FROM THE CEO —



Regina Shupak

CEO, Congress of Neurological Surgeons

On behalf of the Congress of Neurological Surgeons, it is my honor to present the 2016 CNS Annual Report. It has been an extraordinary year of progress and success. The achievements of this past year are in large part due to the commitment and countless hours of work by our 2016 CNS President Russell L. Lonser, a tireless 2016 Executive Committee, and the many volunteer committees who worked together to advance our agenda within neurosurgery. The CNS has benefited greatly from their outstanding stewardship and guidance.

Just as important as our continued accomplishments, I am grateful for our CNS members who continually inspire us to maintain a strong organization to support them. In 2016, we strengthened our ability to support our members on a number of fronts. In medical education, we worked to personalize and innovate across the board. We streamlined our curriculum in thoughtfully-prepared live courses, evolved SANS with a series of new modules that deliver targeted education, and continue to develop a deep, online catalog of on-demand education. I am exceedingly proud of our ability to keep pace with the rapidly changing medical landscape.

The team at NEUROSURGERY® Publications continues to push the envelope of progress, under the direction of Editor-in-Chief, Nelson M. Oyesiku, MD. Our flagship journal, *Neurosurgery*, received its highest Impact Factor to date in 2016, and *Operative Neurosurgery* expanded to a bimonthly publication with a fully independent editorial review board. In addition, this past year saw the development of The Surgeon's Armamentarium, an exciting new digital search utility.

The CNS is fortunate to have one of the most effective teams in Washington, DC. We made significant progress on tough issues in 2016, such as helping to guide the Medicare Access and CHIP Reauthorization Act (MACRA), abolishing the Independent Payment Advisory Board (IPAB), and advocating to provide additional funding for graduate medical education (GME).

Many CNS committee members, faculty, volunteers, and staff worked together to make the 66th Annual Meeting one of our highest-attended meetings, attracting new levels energy and excitement, and presenting

timely and relevant scientific breakthroughs in groundbreaking new ways. We were thrilled to serve as a hub for courses and meetings such as the CNS Oral Board Exam Prep Course, the Tumor Section Satellite Symposium, the ANSPA Annual Fall Meeting, and the PGY4-5 Resident Boot Camp.

Most critically, our finances and investments are robust and our corporate partnerships continue to grow. We are especially grateful to our member companies of the CNS Industry Allies Council (IAC) for their ongoing support of the CNS and its educational initiatives. These partnerships helped the CNS launch two new education programs that deliver solutions to help our members provide better care.

The executive committee, our volunteers and I would also like to thank the dedicated and professional staff at the CNS who give so much of their time and energy to serve our members. By continuing to work "better together" we are able to meet the evolving needs of neurosurgery and advance the specialty. Thank you for your support and encouragement; it is an honor to serve you.



— 2016 EXECUTIVE COMMITTEE —



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For more information about the VIGILANT Registry,
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