

cnsq IS THE OFFICIAL NEWSMAGAZINE OF THE CONGRESS OF NEUROLOGICAL SURGEONS

# congressquarterly

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Informative • Innovative • Inclusive • Relevant

The CNS  
Experience  
ANNUAL REPORT 2017



Congress of  
Neurological  
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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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Congress of  
Neurological  
Surgeons

## — EDITOR'S NOTE —



**Martina Stippler, MD**  
2018 Editor, *Congress Quarterly*

In this Annual Report issue of the cnsq, we look at all the CNS accomplished in 2017. This past year, the CNS has refocused on service and connection to our membership, with the aim of providing an innovative, relevant, and inclusive learning experience that focuses on the individual and their practice needs. Read more about how we have begun to deliver on that promise in this issue.

I also would like to take this opportunity to introduce myself as the new editor for cnsq. My responsibility as the editor is to give you, our readers and members, a view of neurosurgery from a different vantage point than you may typically see, with articles and stories that illuminate our field, make you nod your head in recognition, or even rethink previously held concepts. This is your magazine, by and for you. My goal is to refresh the “q” and engage you in the unique experiences going on in our field. Our cover photo is one example of delivering unique experiences. At the Annual Meeting in Boston, we took part in a quest for the Guinness World Record for the largest group experiencing virtual reality. (We are still waiting to hear if we broke the world record.)

I also want to take this opportunity to thank our membership for your trust and support, as well our volunteers and many committees whose hard work you will read about in the following pages. CNS Committees who have provided content for this issue include:

### 2017 CNS Committee Leads

- **Membership Committee:** Brian V. Nahed, MD
- **Annual Meeting Committee:** James L. Harrop, MD; Alan M. Scarrow, MD, JD; Brian L. Hoh, MD; Alexander A. Khalessi, MD
- **Publications Committee:** Elad I. Levy, MD; Nelson M. Oyesiku, MD, PhD; James S. Harrop, MD
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- **SANS Committee:** Garni Barkhoudarian, MD; Martina Stippler, MD
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- **Resident Committee:** Martina Stippler, MD

## — 2017 PRESIDENT —



**Alan M. Scarrow, MD, JD**

2017 President, Congress of Neurological Surgeons

In a sixty-seven-year-old organization like the CNS, a certain amount of looking back is necessary to move forward. The CNS has a strong culture of innovation. It continually improves its mission of advancing neurosurgical education and scientific exchange by assessing ongoing performance; determining what we do best, analyzing what others do well, and looking around the corner at the possible futures of neurosurgical education. That continual process of reflecting on the past, assessing today, and planning for tomorrow is the not-so-secret recipe for perpetual learning, progress, and success.

In many ways, measuring the success or failure of a single year in the life of an organization in its seventh decade is not complicated. There is a strong focus on how you—our members—perceive the CNS and its programs. We monitor attendance and gather feedback constantly to determine if what we are offering is relevant, practical, and accessible in both format and location. We are particularly interested in the impressions neurosurgeons have of the new programs we offer. That feedback determines whether we repeat, modify, or scuttle those programs entirely.

In 2017, we launched the SANS Written Boards High-yield Review Course and two regional interdisciplinary Acute Stroke Care Symposia; expanded online education with the CNS Guidelines app and the new Journal Club Podcast series; and brought innovative events to the CNS Annual Meeting with the Paper of the Year Awards, the Innovation of the Year Award, and the CNS Xperience Lounge. Many of you experienced these events, or used these educational tools, and have given helpful feedback that will impact each of them for this coming year. We also completed another great Annual Meeting in Boston. Approximately 5,000 attendees were on hand to see the best of what our profession has to offer in the way of science, technology, and contemporary thinking on neurosurgical disease. Through it all, we enjoyed outstanding success, found areas that we need to improve, and learned what we need to do to become better.

In order for organizations to survive over decades of time, they must adapt to the needs of their members. “It is not the strongest of the species that survives, nor the most intelligent, but rather the ones that are most adaptive to change,” was Darwin’s insight, which is as true for organizations as it is for species. But Darwin’s observation of progress without planning doesn’t result in a cure for cancer or a reduction in head injuries. Accomplishing those things requires the hard work of dedicated physicians and scientists who cooperate on education and communicate through scientific exchange. That is the forum the CNS has provided for the past sixty-seven years, and it is what we will continue to work on and improve so that another generation of neurosurgeons can become all they can be.

Finally, I thank you once again for electing me as your president this past year. It was one of the great honors of my professional life to serve you and this wonderful organization. I wish you the very best in this New Year and look forward to seeing you again at future CNS events.



# — MEMBERSHIP —

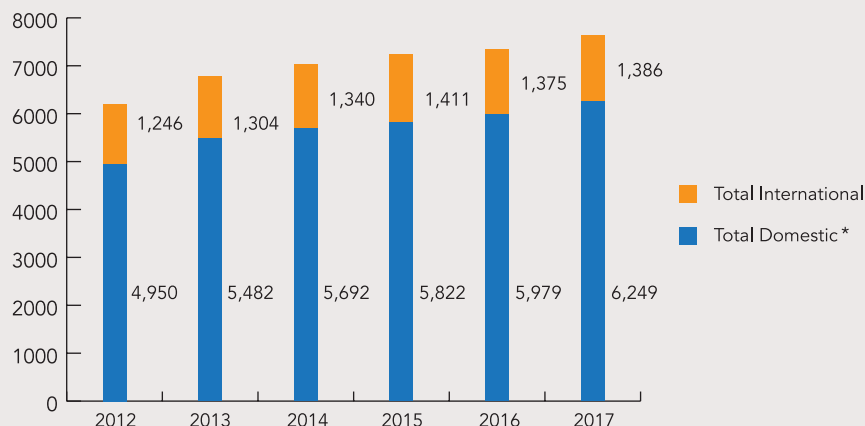


**The CNS is the leader in neurosurgical education and innovation,** dedicated to advancing neurosurgery by facilitating scientific discovery and its translation into clinical practice. In 2017, the CNS continued to report member growth across all major categories. With a total membership of 9,397 members, including 6,249 Active (domestic) members and an Active International membership of 1,386, the CNS has grown its domestic membership year-over-year for eight consecutive years.

**In 2017, International member categories were redesigned** to reflect a renewed focus on engagement. At the CNS Annual Meeting in Boston, Massachusetts, the CNS approved new bylaws that restructured international membership to a two-tier dues structure based on World Bank economy classifications, and realigned membership dues rates commensurate with the value of the benefits. With this new policy in place, more neurosurgeons from more countries will have more affordable access to all the CNS has to offer.

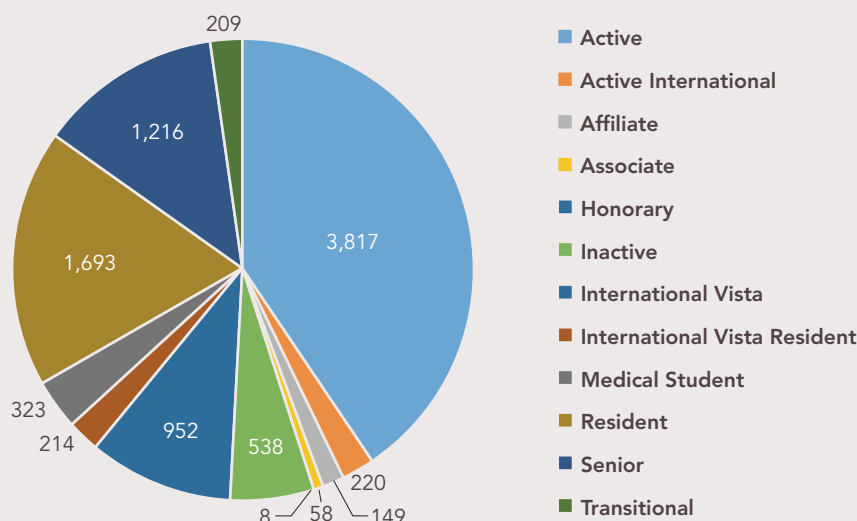


## CNS Member Growth



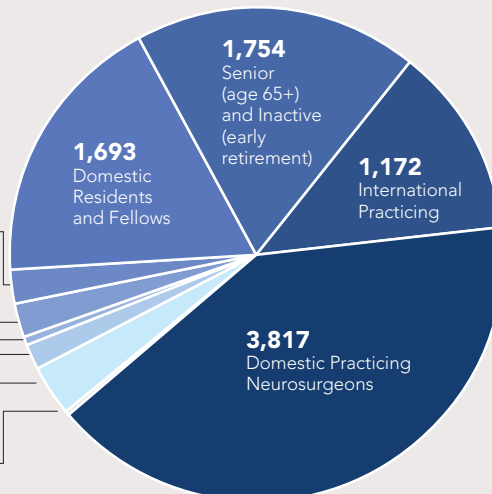
\*Excludes Honorary, Senior, and Inactive members

## CNS 2017 Membership



## CNS Member Data

Type	Membership
Domestic Practicing Neurosurgeons	3,817
International Practicing	1,172
Senior (age 65+) and Inactive (early retirement)	1,754
Domestic Residents and Fellows	1,693
International Residents and Fellows	214
Transitional (recently completed residency)	209
Non-Neuro MDs, DOs, and PhDs	58
Nurses, NPs, PAs, and Allied Health Professionals	149
Medical Student	323
Honorary	8
<b>TOTAL</b>	<b>9,397</b>



CNS membership dues continue to be the lowest of any major neurosurgical organization and CNS members receive a host of benefits including complimentary and discounted access to CNS' premier offerings:

- Online and print access to NEUROSURGERY® Publications: *Neurosurgery*, *Operative Neurosurgery*, *Clinical Neurosurgery*, plus the Surgeon's Armamentarium
- *Congress Quarterly* magazine
- Self assessment exams (SANS)
- Online courses and webinars, offered live and on-demand
- Nexus, CNS' online case-based repository of neurosurgical operative techniques and approaches
- CNS Annual Meeting
- 10 live courses across the subspecialties
- Comprehensive Written and Oral Board preparation resources
- Leadership education, courses, and networking opportunities
- Neurosurgical Practice Guidelines—accessible on [cns.org](http://cns.org) and via the new Guidelines app
- Advocacy and representation in Washington, DC, via the Washington Committee



cnsq

## — MEMBERSHIP —

*continued*

A true innovator in neurosurgical education, the CNS is constantly developing educational delivery platforms that immerse surgeons in new learning experiences and engage them in the conversations that are advancing our specialty.



### Francis X. Rockett, MD

*"I come to the meetings for the learning, companionship, observation, and to catch up on some of the new things that are going on—I like to make sure that the little gray cells have some work to do!"*

— Francis X. Rockett, MD  
Brookline, Massachusetts, CNS Member since 1966

Dr. Rockett, a CNS Senior member, was born in 1931. He enjoys coming to as many CNS Annual Meetings as he is able. He attended the 2017 meeting in Boston for the full five days. Dr. Rockett continues to practice at Newton-Wellesley Hospital and serves as a consultant in neurosurgery with Harvard University's Health Services and Department of Athletics and with Boston College's Department of Sports Medicine. In 2014, he was honored by the Massachusetts Medical Society with its Lifetime Achievement Award.

### Davide M. Croci, MD

*"I went on the CNS website and found out that they offer some interesting things for residents and then I was impressed with the online education—the webinars, courses and everything else. I decided to join!"*

— Davide M. Croci, MD  
Allschwil, Switzerland, CNS member since 2017

Dr. Croci became an International Vista member just weeks before the 2017 CNS Annual Meeting. He originally submitted an abstract to the meeting, which was accepted for a poster presentation. At the same time, he wanted to join a neurosurgery association and was impressed with the online educational offerings at the CNS. Dr. Croci decided to fly to Boston to attend the meeting. He is a resident at the University Hospital Basel, Switzerland.



The CNS cultivates a dynamic and inclusive community of neurosurgical leaders by offering the highest-quality resources that prepare them to meet neurosurgical challenges. Informative world-class educational programs use trusted, credible resources, and inclusive programs and events foster collaboration and growth.

# — THE 2017 CNS ANNUAL MEETING —



## TRANSFORMATION AND CELEBRATION

The 67th Annual Meeting of the Congress of Neurological Surgeons

October 7–11, 2017

Boston, Massachusetts

The 2017 CNS Annual Meeting was the culmination of a year of exciting expansion across the CNS. Bringing together members, faculty, volunteers, staff, and industry partners, the meeting reinvented the process of providing innovative, inclusive, and relevant education to members. Standout experiences included a focus on the future of medicine, and the use of virtual reality to augment surgical practice. The new CNS Central and Xperience Lounge provided dedicated spaces for members to see brilliant new technologies, interact with peers, and have their questions answered by CNS staff.

## 2017 CNS Annual Meeting Honored Guest and Distinguished Honorees



CNS Honored Guest  
**Alan R. Cohen MD, FACS, FAAP**



CNS Distinguished Service Award Winner  
**Richard Ellenbogen, MD**



CNS Founder's Laurel Award Winner  
**Steven L. Giannotta, MD**

## ANNUAL MEETING HIGHLIGHTS

- An unprecedented Guinness Book world record attempt for most concurrent participants in a neurosurgical 360° virtual reality experience.
- The launch of **Nexus**, CNS' new case-based repository of neurosurgical operative techniques and approaches, was introduced during the Tuesday general session.
- The launch of the **CNS Guidelines app**, which makes official CNS-produced guidelines more accessible.
- The CNS introduced a refreshed **Journal Club** delivered in podcast form. Inaugural podcasts included conversations with the award-winning authors of *Neurosurgery's* Paper of the Year.
- **CNS Central:** Starting early Saturday morning, members gathered at CNS' new service hub to catch up with colleagues, try out the latest online educational offerings, and chat with our membership team about their benefits.
- The centerpiece of the Exhibit Hall, the **CNS Xperience Lounge**, drew crowds to hear presentations from Innovation of the Year nominees and Paper of the Year authors, meet our guest speakers, and get their hands on innovative technologies that are changing neurosurgical training and practice.

*The CNS and Surgical Theater brought immersive 360° virtual reality to neurosurgery at the General Scientific Session on Monday. The entire audience participated in a virtual reality experience in an attempt to set a Guinness World Record for the largest gathering of people using VR displays.*



## ANNUAL MEETING BY THE NUMBERS

The CNS Annual Meeting serves as a hub for scientific exchange, educational courses, symposia, and technology.

- Over **28,098.5** CME credits were claimed as a result of Annual Meeting attendance
- There were **2,563** medical registrants in attendance
- Over **338** international attendees attended (not including Canada or Mexico)
- **12** CNS US Active Duty Military members took advantage of CNS special benefits such as complimentary registration and free housing
- **47** CNS Resident members received free housing
- **38** Affiliates hosted their event during the Annual Meeting
- The CNS Oral Board Exam Preparation Review Course drew **83** participants



## 2017 Innovator of the Year

New this year, the Innovator of the Year award was created to recognize new technologies, techniques, and other contributions of CNS members and corporate partners to improve the field of neurosurgery. After an open call for submissions, 32 proposals were vetted by the selection committee and three finalists were selected to present their innovations in the CNS Xperience Lounge on Monday, October 9. Annual Meeting attendees then voted on the top Innovator of the Year. The winner, **Dr. Daniel A. Orringer**, was announced during the Wednesday general session.

– **Innovator of the Year** –  
**Rapid Intraoperative  
Diagnosis through  
Stimulated Raman  
Histology**  
Daniel A. Orringer

– **Top 3 Finalist** –  
**The Smart Shunt:  
A Novel Shunt  
Catheter that Can  
Measure Pressure**  
Carrie R. Muh

– **Top 3 Finalist** –  
**Site-specific,  
Extended Release  
Drug Delivery  
System**  
R. Loch Macdonald



*CNS Innovator of the Year, Daniel Orringer, MD*

**The Residency Program Abstract Competition is a convivial competition that brought submissions from neurosurgical residency programs around the world. The 2017 winners are:**

**First Place** – University of California,  
San Francisco: **34** accepted abstracts

**Second Place** – Vanderbilt University  
Medical Center: **31** accepted abstracts

**Third Place** – University of Pittsburgh  
Medical Center: **26** accepted abstracts

## 2017 Abstract Awards

The Annual Meeting abstract program attracted 1,489 submissions, and continues to be an exceptional point of pride for authors, researchers, and residency programs. Abstracts were presented through oral presentations, rapid-exchange sessions, and poster presentations.

Ananth K. Vellimana  
CNS Resident Award

Tareq A. Juratli  
National Brain Tumor Society Mahaley  
Clinical Research Award

Jian Guan  
Julius Goodman Resident Award

Arka Mallela  
American Brain Tumor Association  
Young Investigator Award

Hongwei Zhang  
Columbia Softball Pediatric Brain  
Tumor Award

Matthew Garrett  
Preuss Award

Matthew Agam  
Integra Foundation Award

Suganth Suppiah  
Stryker Neuro-Oncology Award

Derek W. Yecies  
Sherry Apple Resident Travel Scholarship

Robert Y. North  
Ronald R. Tasker Young Investigator Award

Jizong Zhao  
Galbraith Award

Adomas Bunevicius  
Brainlab Neurosurgery Award

Sumeet Vadera  
Samuel Hassenbusch Young  
Neurosurgeon Award

Benjamin L. Grannan  
Stereotactic And Functional  
Neurosurgery Resident Award

Jason K. Karimy  
Joint AANS/CNS Cerebrovascular  
Section Abstract Award

Fahad A. Alkherayf  
Synthes Skull Base Surgery Award

Desmond A. Brown  
Journal Of Neuro-Oncology Award

Qiang Yuan  
Think First Injury Prevention Research Award

## The 2017 SANS Challenge

Forty residency programs participated in the official 2017 SANS Challenge, and 12 teams qualified for the live event in Boston. The SANS Challenge champions are:

– **First place** –  
**The Ohio State University**  
 Jeffrey Hatef  
 Ammar Shaikhouni

– **Second place** –  
**University of Pittsburgh Medical Center**  
 Gurpreet Gandhoke  
 Ezequiel Goldschmidt

– **Third Place** –  
**Mayo Medical Clinic**  
 Ross Puffer  
 Ben Himes



SANS Challenge Winners

**The CNS Xperience Lounge was a hub for attendees to catch up with colleagues, view posters, hear speakers, and get hands-on with new tech.**



Bestselling author Brett King signs copies of his book *Augmented, Life in the Smart Lane*.

## 2017 Neurosurgery Paper of the Year Award Recipients

The Paper of the Year Awards identified and honored the most impactful papers published in *Neurosurgery* from June 2016–June 2017. Winning papers challenged dogma, created a paradigm shift, and got surgeons rethinking approaches to patient care, big data, and trial results.

**Paper of the Year:** Tibor Becske  
**Paper of the Year, Runner-up:**  
 Justin Smith, International Spine Study Group

**Paper of the Year: Section Level**  
**Cerebrovascular Paper of the Year:**  
 Harley Brito da Silva & Laligam Sekhar  
**Neurotrauma & Critical Care:** Arminas Ragauskas  
**Pain:** Leonardo Kapural  
**Pediatrics:** Diego M. Morales  
**Socioeconomic:** Stephen Honeybul  
**Spine & Peripheral Nerve:** Roger Hartl  
**Stereotactic & Functional:** John Corrigan  
**Tumor Paper of the Year:** Yasuo Iwade



Neurosurgery Paper of the Year Award Recipient, Tibor Becske, MD



2017 International Partner, the Neurological Society of India

**The CNS welcomed its 2017 International Partner, the Neurological Society of India.**





— NEUROSURGERY® PUBLICATIONS —

# Celebrating 40 Years of Editorial Excellence





In 2017, NEUROSURGERY® Publications underwent several changes and achieved notable milestones, under the leadership of Editor-in-Chief, Nelson M. Oyesiku.

NEUROSURGERY® Publications' journals aim to satisfy a distinct need among CNS members and the profession at-large, from the high-quality clinical research published in **Neurosurgery** to the up-to-date literature on operative practice and technique found in **Operative Neurosurgery**.

As a dynamic organization, we are not merely seeking to maintain the status quo year-over-year, but to truly advance our publications and the profession. In 2017, we began publishing with Oxford University Press (OUP). It goes without saying that a new partnership, especially one in the ever-evolving and multi-faceted scholarly publishing industry, requires an immense amount of work. We do hope that many of you who submitted to the journals over the course of 2017 found your experience with the Editorial Office and OUP this year to be a positive one. Moreover, without the dedication of the OUP team to our vision, many of the accomplishments we highlight here would not have been possible.



Perhaps our most notable accomplishment this year came with the release of the 2016 Impact Factor (IF). Now at 4.889, *Neurosurgery's* IF is the highest it has ever been and marks the third consecutive year that the journal has hit a record high IF and the fifth consecutive year of year-over-year gains. This continued upward trajectory is a validation of *Neurosurgery's* concerted and specific efforts to attract and publish only the highest quality manuscripts. To attain this record-breaking IF in 2017, as *Neurosurgery* celebrated its 40th anniversary no less, stands as a fitting tribute to Robert H. Wilkins, MD, who along with his wife, Gloria, began the journal in the summer of 1977, and to those Editors-in-Chief emeriti who stewarded the journal and built upon Dr. Wilkins's original vision: Clark Watts, MD; Edward Laws, Jr., MD; and Michael Apuzzo, MD. The journal's 40th anniversary was celebrated extensively in the July issue of *Neurosurgery*. We encourage each of you to spend some time with this issue as it contains Dr. Wilkins's introduction to the 1977 inaugural issue, a fitting remembrance of his life, and provides glimpses at the journal's covers over the years.

In addition to celebrating *Neurosurgery's* 40th anniversary, July also saw the debut of our audio abstract series: *Neurosurgery Speaks!* This feature offers audio translations of selected abstracts from recently published articles in 10 different languages. These translations are performed by native speakers, all of whom are members of our *Neurosurgery Speaks!* volunteer cohort. We plan to expand this feature to *Operative Neurosurgery (ONS)* as well. The first *ONS*

*Neurosurgery Speaks!* audio abstracts are scheduled to debut in the coming months.

Since we began a concerted effort to cement *Operative Neurosurgery* as a fully independent title with a unique scope and presence, the journal has seen a marked increase in submissions. Originally published quarterly, publication frequency grew to bi-monthly in 2017. In order to accommodate the journal's growth, *Operative Neurosurgery* will be published monthly beginning with the January 2018 issue. Monthly publication will not only allow us to increase print publication speeds, but it also represents a significant increased member benefit. Finally, we realize the importance of content discoverability and therefore, were delighted when, in May, we were informed that the journal had been accepted for indexing in PubMed beginning with February 2017 content.

In addition to those most notable accomplishments detailed here, we hope many of you have had the chance to engage with some of *Neurosurgery's* featured content this year including review series (Neuroradiology and Spinal Surgery), supplements (AOSpine North America's 2017 Focus Issue and "The Coming Changes in Neurosurgical Practice"), and guidelines (Brain Trauma Foundation's "Guidelines for the Management of Severe Traumatic Brain Injury, Fourth Edition" and Angioma Alliance's "Guidelines for the Clinical Management of Cerebral Cavernous Malformations"). The previous year was indeed another banner year for NEUROSURGERY® Publications. We look forward to an even bigger and brighter 2018!

## — EDUCATION DIVISION —

Under the leadership of Chair Nicholas Bambakidis and Vice Chair Ashok Asthagiri the CNS Education Committee introduced four live courses, new online and mobile resources, and a modernized, online learning catalog, all while expanding and building upon some of the CNS' most popular and time-honored educational offerings. This was accomplished through the efforts of 24 volunteer committee and work group members and over 180 live and online course faculty members.

### 2017 CNS Live Courses-at-a-Glance

#### Spine Complications

CNS's Spine Complications Course is designed to gather small groups of surgeons in an intimate setting to discuss their most challenging spine complication cases. Reviews from course participants highlight the immense value of specialized, smaller-course discussions.

Total  
Attendance

31

Total CME  
credits claimed

691.5

Total Nursing  
credits claimed

#### Acute Stroke Symposia

Bringing together the entire neurocritical care team, each day-long event aimed to improve outcomes in patients with acute ischemic stroke by addressing triage and medical management of neurological emergencies.

- Chicago Acute Care Stroke Symposium: held in May, with top neurosurgical faculty from University of Chicago Medicine, Northwestern Medicine, Rush University Medical Center, and University of Illinois at Chicago.
- Houston Acute Care Stroke Symposium: held in June, with faculty from Baylor College of Medicine, Houston Methodist, and the University of Texas Medical School at Houston.

70

58

78.75

60

24

183

#### Skull Base Fellows Course

Held in August in Cleveland, Ohio, this hands-on course offered 18 fellows and junior faculty an opportunity to get one-on-one guidance from the masters of skull base surgery through case-based discussions and cadaveric dissections. The CNS plans to offer it again in 2018.

18

97.25

#### Oral Board Exam Preparation Review Course

This two-day intensive course was held conjunction with the CNS Annual Meeting last October.

82

676

#### CNS Annual Meeting

Held in October, the CNS Annual Meeting draws neurosurgeons and allied health care providers from all over the world, and is the premier forum for learning about cutting-edge procedures, approaches, and technologies in the field.

2,563

28,098.5

**2017 TOTALS:**

**2,824**

**29,645.25**

**262.75**

## CNS Board Exam Preparation

The CNS prides itself on being a leader in ABNS exam review and preparation, and in 2017, the Education Division expanded its catalog, creating a comprehensive curriculum of opportunities to help residents and early career surgeons navigate the certification process.

### *Written Board Review*

New for 2017, the CNS premiered the **SANS Written Boards High-yield Review Course** in March to a group of 45 residents. This two-day intensive course combined summative didactic sessions with integrated real-time testing covering the breadth of neuroanatomy, neurobiology, neuropathology, neuroimaging, neurology, neurosurgery, critical care, and core competencies—from synaptic physiology to cranial nerve anatomy to complex spine surgery. The case-based approach and the tailored SANS examination study guide were designed to help reinforce the most important topics to review for the exam.

The live course is complemented by the CNS' new SANS Written Board Module Bundle, comprised of seven 100-question subspecialty modules, which were provided to all 2017 attendees with their registration. In 2018, the Education Division plans to expand the curriculum with a recorded version of the live course and a series of

Written Board preparation webinars.

### *Oral Board Review*

The popular **CNS Oral Board Exam Preparation Review Course** is designed to help candidates get a head start on Oral Board preparation, identify the parts of the exam that will be more challenging to them, and start to get comfortable with the exam format. Held in Boston, just prior to the Annual Meeting, this two-day intensive review course was retooled this year to address the recent changes to the Oral Examination format. Attendees also had access to three new videos on test taking strategies presented by course faculty and other neurosurgeon experts.

The live Oral Board Review Course is complemented by an on-demand recorded course and two live Oral Board Review webinar series, each held just prior to the ABNS Exam in the spring and fall. For 2018, the Education Division added a second Oral Board Review Course in the winter, allowing participants to attend the live course closest to their





## — ONLINE LEARNING —

### *Education Division*

The CNS maintained its reputation as the leader in online continuing education in 2017 with a growing, on-demand portfolio of products, webinars, recordings, and study aides designed to bring reliable, relevant content to neurosurgeons across subspecialties and around the globe.



examination date.

The Education Division also launched its new CNS Online Education Catalog, with over 150 archived webinars and recorded live courses available anytime and anywhere, and all mobile friendly. Members can now search the catalog by product type, specialty, or keyword to get an overview of the products available.

The improved catalog also includes new live and on-demand offerings, like the Seven Aneurysms Bundle, led by Michael T. Lawton, a series of seven live webinars and a SANS exam held over the course of seven months. Dr. Lawton joined each of the series for a live Q&A. This webinar series was a valuable tool that helped impart techniques and nuances to young neurosurgeons and future generations who may have limited open surgical opportunities.

For the first time ever, the CNS archived a number of CME-eligible sessions from the 2017 Annual Meeting via digital recordings, so members who were unable to attend in person still have the opportunity to share in the educational benefit.

#### **2017 Online Learning Catalog Counts**

Board Prep.....	<b>69</b>
On-Demand Products.....	<b>177</b>
Live Webinars.....	<b>22</b>
Annual Meeting Recordings.....	<b>124</b>

#### *Nexus*

The CNS launched Nexus, a case-based compendium of surgical techniques and approaches, at the CNS Annual Meeting. This mobile friendly, intuitive reference allows surgeons to quickly review a case similar to their own before heading into the operating room. Residents have also found Nexus to be an essential tool for reference during specific rotations. The beta launch, released in October, featured over 150

cases, primarily within spine and vascular subspecialty topics. Each case efficiently highlights the approach and alternatives, walks through the procedure step by step, and covers the outcomes, pearls, and pitfalls. High quality intraoperative videos and illustrations add essential details and clarity to the cases. The approach section reviews the current best practices for cranial approaches, with spinal approaches coming in 2018.

Nexus is accessible free of charge for a limited time at [cns.org/nexus](http://cns.org/nexus). The Education Division and Nexus Editorial Board have an aggressive plan to populate all subspecialty areas in 2018. We invite our members to submit cases for inclusion on this relevant platform. To submit your case for consideration, contact the CNS at [education@cns.org](mailto:education@cns.org).

#### **Nexus Stats**

Unique users since launch.....	<b>2,261</b>
Sessions .....	<b>4,312</b>
Average session duration .....	<b>3:20</b>

### Neurosurgery Survival Guide

The CNS mobile app portfolio also expanded this year with the addition of the Neurosurgery Survival Guide (NSG). Developed in 2011 by CNS member Neil Roundy during his residency, this multi-platform app has become a trusted reference for mid-levels, residents, PAs, and those working in neuro-intensive care units.

The content is organized and formatted for quick reference in the OR with easy access to information on common neurological conditions. The NSG currently has over 250 entries and continues to grow through the work of the CNS Resident Ambassador contributions and consistent updates. If you have the guide and want to see the addition of articles not already covered, send a note to [nsgsuggestions@cns.org](mailto:nsgsuggestions@cns.org), so that we can make the app better serve the specialty. The NSG app is available for both iPhone and Android devices at [cns.org/apps](http://cns.org/apps).



### CNS Online Education (including apps)

10,822

Total number of users

14,185.75

Total CME credits claimed

### SANS

SANS, the CNS' Self-Assessment in Neurosurgery, continues to be the most trusted self-assessment tool in the field with 16 self-assessment exams. In 2017, we rounded out our catalog of Subspecialty SANS Modules. Each subspecialty module offers 100 peer-reviewed questions, worth up to 10 CME credits.

- SANS Vascular Module
- SANS Pain and Peripheral Nerve Module
- SANS Spine Module
- SANS Tumor Module
- SANS Functional Module
- SANS Pediatrics Module
- SANS Trauma and Neurocritical Care Module

The CNS also bundled these seven exams together in the SANS Written Board Module Bundle as the premier reference for residents in primary exam preparation. Attendees of the SANS Written Board Exam Preparatory Course received access to the bundles with registration, while Residency Programs have the opportunity to license the bundle and gain access to detailed question reporting.

The SANS Institutional License Platform helps residency programs by offering critical support in residents' learning curriculum and primary exam preparation.

- 67 Residency Programs have obtained SANS Module Institutional Licenses in 2017. Does your program participate? Subscribe at [cns.org/sanslicense](http://cns.org/sanslicense).

The CNS also continues to offer three general SANS Examinations, each offering 250 questions worth up to 24 CME. Exams provide immediate feedback and are mobile friendly.

- SANS General
- SANS Spine
- SANS Pediatrics

The CNS thanks the 2017–2018 SANS Committee for their dedication to generating peer-reviewed questions that contribute greatly to outstanding SANS exams. The committee is planning to develop several new products in 2018 including: SANS Neuroradiology, SANS Neuropathology, SANS Critical Care, SANS Pain, Opioid, End-of-Life Management, SANS Ethics and Risk Management modules.

**The Congress prides itself on being the most innovative and dynamic provider of online education for neurosurgeons. Access online education at [cns.org/education](http://cns.org/education).**

## — ONLINE ENGAGEMENT —

### Education Division

The CNS offers its members a number of interactive and informative activities to stay in the loop with all things CNS and neurosurgery.

#### CNS Journal Club Podcasts

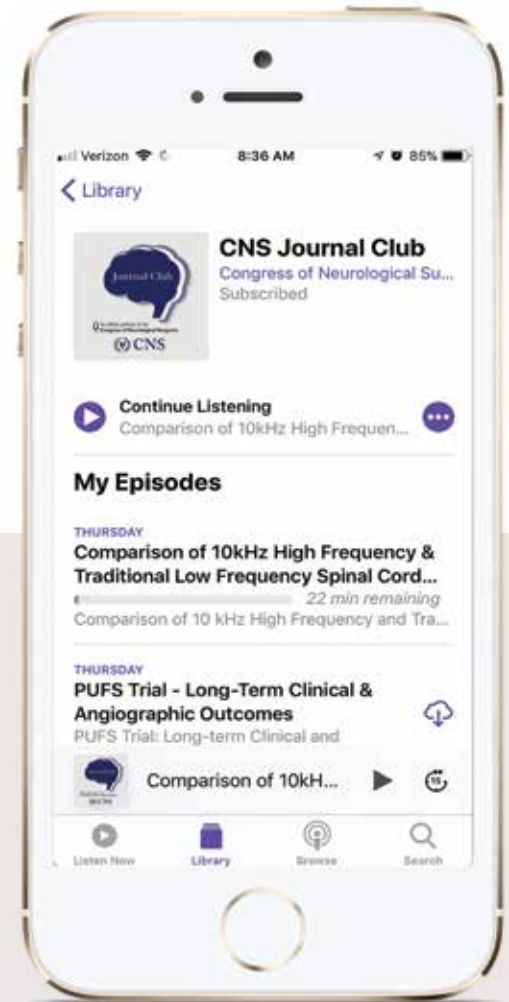
The journal club format has long been used by residents and trainees to stay abreast of developments in the field. In 2017, the CNS updated this format using the medium of the podcast. The CNS Journal Club Podcast series bring lively discussions with the authors of critical new reading from *Neurosurgery* to listeners throughout the world.

Recent journal club podcasts include award-winning papers discussed by the lead author, with questions and critiques from invited surgeons and residents. Seven podcasts are currently available, with a new one coming each month. All podcasts are available on iTunes and Soundcloud.

#### Case of the Month

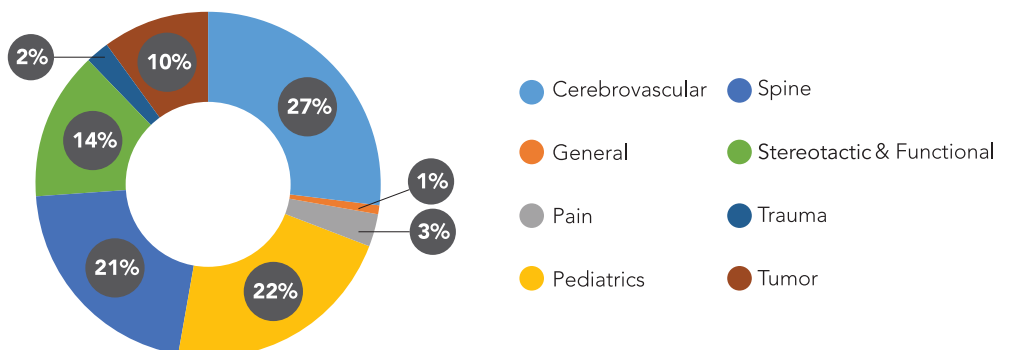
Case of the Month (COTM) remains one of the CNS's most popular online education tools, providing surgeons with the opportunity to review the management and treatment of neurosurgical cases, answer questions, and review relevant journal articles. Monthly cases may be viewed at [cns.org/casemonth](http://cns.org/casemonth).

A total of **3,099** members participated in COTM between the months of Sep. 1, 2016 – Aug. 31, 2017.



#### Neurosurgery Watch

Neurosurgery Watch gives neurosurgeons an easy way to stay up-to-date with current literature. Key results of significant, clinical practice-changing papers from over 50 journals are summarized monthly by an expert panel. Summaries can be found at [cns.org/neurosurgerywatch](http://cns.org/neurosurgerywatch).





## — WASHINGTON REPORT —

### Neurosurgery Makes Significant Progress Advancing Health Policy Agenda

“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 Washington Committee exists to advocate for our specialty and patients.”

Washington Committee  
Mission Statement

Through advocacy, policy development, and public relations, the 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.

Throughout the year, the Washington Office staff are in the halls of Congress or working with government agencies and other health care stakeholders advocating on behalf of neurosurgery. In this role, the CNS 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 CNS 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. More information about the program is available at <https://www.cns.org/MACRA>.

The CNS 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-



Political commentator, Tucker Carlson, with CNS Executive Committee member, Clemens M. Schirmer, MD



and postoperative visit furnished during the global surgery period for every surgical procedure. 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, CNS 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 CNS continues to aggressively challenge third party payor coverage policies, which limit reimbursement for many common neurosurgical procedures. The Joint Coding and Reimbursement Committee (CRC), along with representatives from the Joint National Quality Council (NQC), the Joint Guidelines Committee, the Joint Sections and Washington Committee, work together to provide a balanced assessment of the current literature under review. 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.

## 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. Leading a physician regulatory relief coalition, Washington Committee chair Ann R. Stroink, MD, and Washington Office staff, have had the opportunity to personally make the case directly to former Secretary Tom Price, MD, and CMS administrator Seema Verma. As a result of these efforts, Health and Human Services (HHS) has proposed relief from Medicare quality program penalties, exempted more physicians from the burdens QPP, and is revisiting the rules for Medicare's mandatory appropriate use criteria (AUC) program for physicians ordering advanced diagnostic imaging.

## 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. Top priorities include:

- Abolishing the Independent Payment Advisory Board (IPAB). The IPAB is a 15-member unelected and unaccountable government board, whose principal responsibility is to cut Medicare. In leading the Physician IPAB Repeal Coalition, the CNS was instrumental in getting bipartisan legislation to repeal the IPAB. 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 CNS 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.
- The CNS continues to advocate for the repeal of the medical device excise tax. 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 CNS recognizes the need for improving the medical liability climate for neurosurgeons. 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 CNS successfully advocated for the passage of the "Protecting Access to Care Act," (H.R. 1215) by the US House of Representatives. The legislation would, among other things, cap non-economic damages at \$250,000 and establish standards for expert witnesses. Additionally, the US House passed the "Sports Medicine Licensure Clarity Act of 2017," (S. 808/H.R. 302), which provides protection 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. While medical schools in the US 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 1996 levels. 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. Working with the Association of American Medical

# — WASHINGTON REPORT —

*continued*



Shelly D. Timmons, MD, PhD; Rep. Phil Roe (R-Tenn.); and Ann R. Stroink, MD

Colleges (AAMC), the Alliance of Specialty Medicine and others, the CNS 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 CNS has been a founding partner in efforts to establish and promote membership in the Congressional Pediatric Trauma Caucus.

- The Washington Committee represented the CNS 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. Leaders from the pediatric neurosurgery community worked with the Washington Committee and Washington Office staff to meet with, and provide input to the Government Accountability Office (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.
- 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 US military health care providers in maintaining a state of readiness by embedding military trauma teams and providers in civilian trauma centers.

## Communications Outreach

The Washington Committee garners support for neurosurgery’s health policy positions by providing the media with timely information. 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 a circulation/audience of 13.6 million.

Additionally, the Washington Office’s digital media platforms continue to expand, garnering over 435 million individual impressions, and amassing a subscription audience of 135,000. Social media platforms 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 CNS 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. 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 help drive health policy influencers to information on Neurosurgery Blog and the Twitter feed, while also spotlighting CNS 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 social media platforms. For more information about CNS advocacy efforts, contact Katie O. Orrico, director of the AANS/ Washington Office at [korricon@neurosurgery.org](mailto:korricon@neurosurgery.org).



## — LEADERSHIP AND RESIDENCY —



### The CNS Leadership in Healthcare Program: Empowering Surgeons for the Leadership Challenges of Today's Healthcare Environment

For more than 65 years, the Congress of Neurological Surgeons has been dedicated to developing young leaders in the field. Of course, as the field evolves, so too do the skills needed to lead. The CNS Leadership in Healthcare program was developed and piloted in 2016 when leaders on the CNS Executive Committee recognized that the dynamics of today's health care environment require more of a neurosurgeon than clinical expertise and surgical skill. Through a generous grant from Medtronic and support from experts in their leadership development program, the CNS Leadership in Healthcare program was launched.

At its core, the Leadership in Healthcare program is designed to empower 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. After a successful pilot course, the Leadership in Healthcare program was expanded for 2017 and applications were opened to all neurosurgeons who completed an ABNS-approved residency program within the past seven years. In addition to a CV and personal statement, each candidate for the 2017 program proposed a personal leadership project they would undertake over the course of the year-long program, either at their own institution or through a local or national society. A selection committee vetted many applications to select a final roster of 13 Leadership Fellows for the 2017-18 program.

The curriculum of the Leadership in Healthcare program covers a unique mix of health care finance and business acumen to help surgeons speak the language of hospital decision makers, along with development of soft skills like building influence, communication, and presentation skills needed to lead teams and advance their projects.

*2017 Leadership Fellows and faculty, including CNS President Alan M. Scarrow, MD, JD, at the mid-year report-out meeting held in Boston at the Annual Meeting*

Content is covered in an intensive two-day workshop, through a series of follow-up webinars, and through individual and peer mentorship surrounding each individual's leadership project. This year's course also included a 360° evaluation process, giving each fellow deeper insight into their personal leadership strengths and challenges. The result is a dynamic and adaptive learning experience unlike anything available in the specialty today, and has been well received by the fellows and their mentors back home.

"This program has already exceeded our early expectations in terms of its impact," said Alan Scarrow, course director and CNS past president. "Already, graduates of our pilot course have gone on to fill leadership roles on the CNS Executive Committee, heading up projects through the CNS Education Division, and as CNS faculty. Their accomplishments with their individual projects have been truly inspiring."

The CNS is grateful for the continued support we have received from Medtronic for this program and the alignment of vision and synergy between our organizations' resources, which have been instrumental in growing and improving this program. We are looking forward to expanding the program further in 2018 and will be selecting the next cohort of fellows in early March 2018.

*"I found the CNS Leadership Fellowship to be a phenomenal learning experience . . . I especially appreciated that the faculty was multidisciplinary—comprised of both neurosurgeons and industry leaders. The faculty provided critical insight into all members of the health care team and how to effectively lead and implement change."*

*— Brian Nahed, 2017 Leadership Fellow*

# — LEADERSHIP AND RESIDENCY —

*continued*



## CNS Resident Ambassador Program

*2017-18 CNS Resident Ambassadors*

The CNS recognizes that the future of neurosurgery depends on the development of neurosurgical leaders. The CNS Resident Ambassador program (formerly the Resident Leader Fellows program) offers neurosurgeons-in-training an extensive array of volunteer opportunities. The program is comprised of two cohorts of approximately 25 each. Volunteers participate in specific initiatives which augment and refine CNS products and programs. For residents, this is an opportunity to work with volunteer leaders in key CNS commit-

tees, such as the Education Division and the Publications Committee. Recent activities include extensive contributions to the Nexus and Neurosurgery Survival Guide (NSG) app.

Other activities include participation in the CNS Journal Club Podcasts, the *Congress Quarterly* Editorial Board, SANS Editorial Board, and a wide variety of work groups that have a direct impact on the development and refinement of online education.

If you are a resident, please consider applying for this rewarding program, where your contributions will advance education within the specialty.

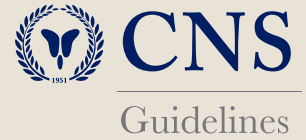
This program also includes the *Neurosurgery Publications Resident Fellowship*, a one-year, 10-hour per week engagement that focuses on all aspects of the CNS journals, including training in the editorial process. Publication Fellowship applications are closed for 2018, but visit [cns.org/publications/fellowship](https://cns.org/publications/fellowship) in January 2019.



*// I'm interested in Resident Education, so I became part of the Education Committee. My first project was working on revitalizing the Journal Club Podcasts. I worked with faculty and Dr. Stippler to put together podcasts of winning papers from the Paper of the Year Awards. It was a great opportunity to review those papers in depth, and have some of the questions that are generated reading a paper answered by the faculty member who is part of bringing that project to life. Our next project is building a classification system for categorizing online learning content. I'm pretty entrenched with what I'm doing at the CNS, and I enjoy it tremendously."*

— Adrienne Moraff, CNS Resident Ambassador

# — GUIDELINES PROGRAM —



*Guidelines Chair, Brian Hoh, MD, and Vice Chair  
Nader Pouratian, MD, PhD*

The CNS continues to advance the practice of neurosurgery globally by inspiring and facilitating scientific discovery and its translation to clinical practice through the development of clinical practice guidelines. The CNS demonstrates its commitment to the development of neurosurgical guidelines by supporting an in-house infrastructure, including robust methodological processes, to produce high-quality evidence-based clinical practice guidelines. The CNS Guidelines Department supports volunteers in all aspects of the development process, from topic refinement and development of clinical questions to publication and dissemination.

## 2017 Program Highlights

- Launch of the CNS guidelines mobile app at the CNS Annual Meeting in Boston
- Nine guideline topics are currently in development
- Recently published guidelines include Nonfunctioning Pituitary Adenoma and Positional Plagiocephaly
- Topics to be published in 2018 include Vestibular Schwannoma, Deep Brain Stimulation for Parkinson's Disease, Thoracolumbar Trauma, Brain Metastases, Spina Bifida, Spine Metastases, and Neurosurgical Ablation for Cancer Pain

## CNS Guidelines Mobile App

This year, thanks in part to the financial support of the Section on Neurotrauma and Critical Care, the CNS proudly launched a new guidelines mobile app at the CNS Annual Meeting in Boston.

This free app, available for download on Apple and Android devices, includes guideline recommendations and topic overviews for all CNS-produced guidelines in five specialty areas. Through the app, clinicians have immediate, at the point-of-care access to 11 guideline topics, with links to the full-text of the guideline, including:

### **Pain**

- Occipital Neuralgia Guideline

### **Pediatrics**

- Pediatric Hydrocephalus Guideline
- Positional Plagiocephaly

### **Spine and Peripheral Nerves**

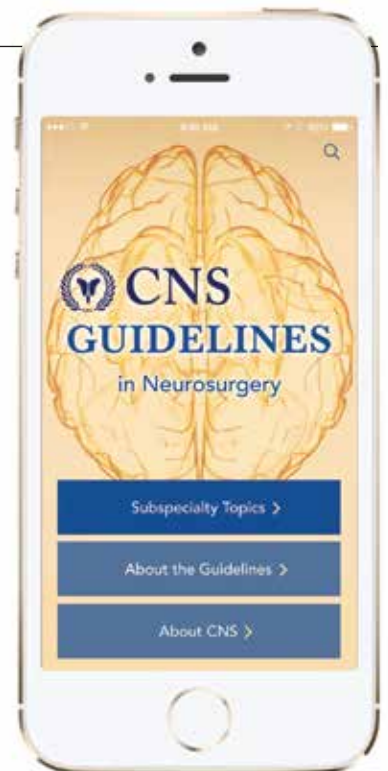
- Acute Cervical Spine and Spinal Cord Injuries
- Cervical Degenerative Disease
- Lumbar Fusion Guideline

### **Stereotactic and Functional**

- Deep Brain Stimulation for OCD

### **Tumor**

- Low Grade Glioma Guidelines
- Newly Diagnosed Glioblastoma
- Nonfunctioning Pituitary Adenoma
- Progressive Glioblastoma



New guidelines will be added to the app upon publication in *Neurosurgery*.



cnsq

# — GUIDELINES PROGRAM —

*continued*

## Guidelines-based Educational Initiatives

CNS's high-quality clinical practice guidelines continue to provide cutting-edge educational content. The 2017 CNS Annual Meeting featured Guidelines Sessions, which were heavily attended and included presentations on these recently published and upcoming guideline topics:

- Nonfunctioning Pituitary Adenoma
- Acoustic Neuroma
- Lumbar Fusion
- Brain Metastases
- Thoracolumbar Spine Trauma

The CNS Annual Meeting also featured a course on clinical practice guideline development, **Clinical Guidelines Development: A Primer on the Development and Review of Evidence-based Clinical Guidelines**. The course content was designed to provide novice and more experienced learners with the knowledge, skills, and tools to develop and to review evidence-based clinical practice guidelines. Key points of the guideline development process were covered, from the development of clinical questions to assessing evidence quality, and challenges in guideline development.

## — THE CNS FOUNDATION —



The CNS Foundation, Inc., exists to equip and prepare neurosurgeons to advance innovation, quality, and accessibility of neurosurgical care, now and in the future. In support of this mission, the Foundation Board of Directors established four designated funds this year to allow donors and corporate partners to contribute to those areas best aligned with their own values.

**The Getch Scholar Fund** supports the NINDS/CNS Getch Scholar K12 Award, which promotes high quality, novel, creative research, and innovative investigation for early career neurosurgeon-scientists. As the inaugural Getch Scholar K12 recipient, Dr. Brian Dlouhy, wrapped up his research in 2017, the Foundation BOD voted to continue this K12 Award, which allows surgeons to complete their research at their home institution, in perpetuity on a bi-annual basis.

**The Guidelines Development Fund** supports the publication and dissemination of neurosurgical practice guidelines, and provides educational opportunities and training for neurosurgeons and residents aspiring to lead guidelines development projects. In 2017, it funded the development of the CNS Guidelines App with support from the Section on Neurotrauma and Critical

Care—making existing CNS guidelines even more accessible to neurosurgeons on the go.

**The Leadership in Healthcare Fund** supports the development of training programs and resources that help the future leaders of our specialty shape their own careers and lead departments, groups, hospitals, and health systems in a time of rapid change.

**The Fellowship Training Awards & Grants Fund** supports awards for neurosurgeons completing fellowship training programs in North America, as well as educational and surgical skills training programs for neurosurgeons in developing nations.

Support for the CNS Foundation and its efforts remains strong, with individual contributions increasing more than 20 percent in 2017, contributing to a 50 percent growth in net assets for the year. With this financial success and the continued growth in 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. Donate to the CNS Foundation at [cns.org/foundation](http://cns.org/foundation).

## — CORPORATE DEVELOPMENT —

In what has been another successful year, the CNS continues to show that dedication to the field of neurosurgery will result in growth and engagement from our valued industry partners.

In 2017, the CNS focused on creating new opportunities for industry to participate in activities that align with CNS Core Values. This focus resulted in 22 companies increasing their non-exhibits support revenue. Due in part to this increase in revenue, the CNS was able to launch two new live courses:

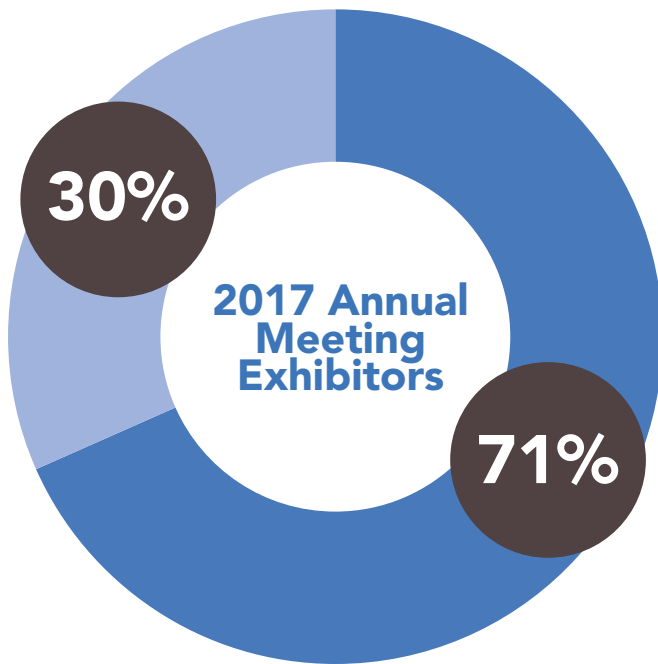
- **Acute Stroke Symposia**, with support from Penumbra, Medtronic, Stryker, and Codman Neuro.
- **Skull Base Fellows Course**, with support from Carl Zeiss, KLS Martin, Integra LifeSciences, Medtronic, Aesculap, Inc., and Apex Medical.

Industry partners continued to provide support for two returning courses:

- **Spine Complications Course**, with support from Medtronic, DePuy Synthes, and Brainlab.
- **Leadership in Healthcare Course**, with support from Medtronic.

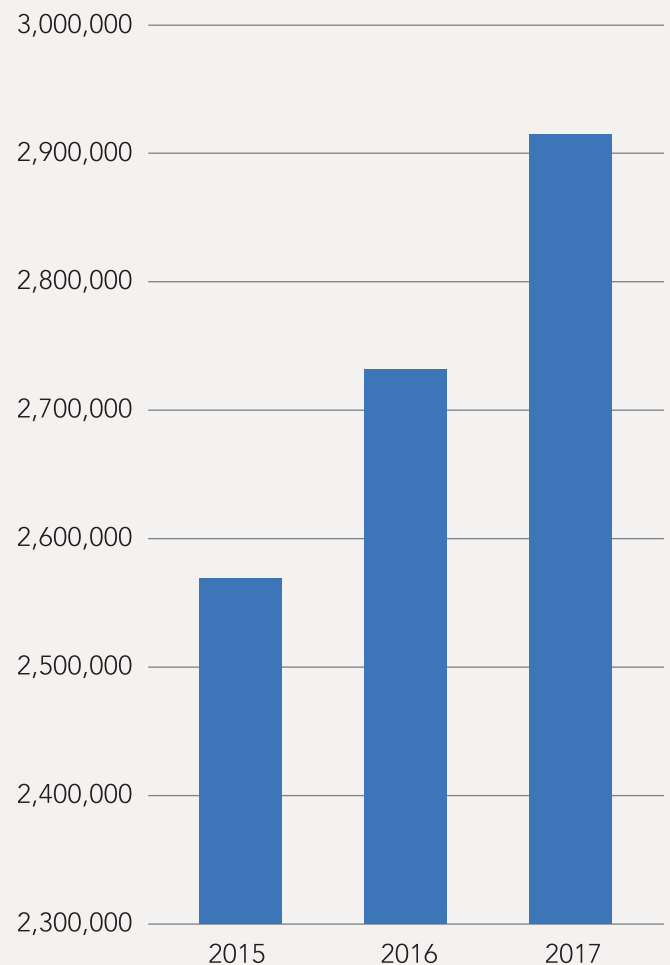
**In 2017, the CNS had 61 companies increase their Annual Meeting exhibits revenue, 45 of which were new companies to the meeting. These new companies were all relevant to the neurosurgical industry and accounted for 30 percent of the exhibitors present.**

We are both proud and grateful for the collaboration with leading companies in the field. Our partnerships give the CNS the opportunity to provide products and solutions that help achieve our mission of enhancing health and improving lives through the advancement of neurosurgical education and scientific exchange.



- **New Exhibitors**
- **Companies that increased revenue to the CNS**

### CNS Corporate Revenue



## — INDUSTRY ALLIES COUNCIL —

As always, the CNS is grateful for the ongoing support of our Industry Allies Council (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.

To foster this dialogue in 2017, the CNS Executive Committee gathered with the leaders of our 12 IAC partner companies twice, on April 23, in Los Angeles, and at the CNS Annual Meeting last October, to discuss the future of our specialty.

The CNS would like to extend a sincere thank you to the following companies for their participation in our Industry Allies Council.

### AMBASSADOR

Medtronic

stryker

### PREMIER PARTNER

CODMAN NEURO

DePuy Synthes  
COMPANIES OF Johnson & Johnson

DePuy Synthes  
COMPANIES OF Johnson & Johnson

synaptive

INTEGRA  
SMITH NEUROSCIENCE

ZEISS

OLYMPUS  
Your Vision. Our Future

### INDUSTRY ALLIES COUNCIL

arbor™  
PHARMACEUTICALS, LLC.

Penumbra

ZIMMER BIOMET

KLS martin®  
GROUP



# — FINANCIAL REPORT —

## Statement of Financial Position

For the 12 months ending August 31, 2017

### 2016 Assets

	Aug 2017	Aug 2016	Increase/ (Decrease)
CNS Cash	\$3,181,483	\$6,818,877	(\$3,637,394)
Accounts Receivable	117,846	206,048	(88,202)
Pre-Paid Expenses & Deposits	968,062	661,883	306,179
Meeting Mgmt Prepays	3,537	39,233	(35,696)
Beneficial Interest	384,000	384,000	0
Due from CANE, Net	16,947	16,947	0
Investments	19,123,529	15,176,409	3,947,120
Equipment & Software, Net	1,156,704	1,183,503	(26,798)
Joint Section Assets, Net	3,845,420	3,533,822	311,599

### Total Assets

<b>28,797,528</b>	<b>28,020,722</b>	<b>776,807</b>
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### 2016 Liabilities

Accounts Payable	879,472	675,646	203,827
Deferred Rent	197,710	224,210	(26,501)
Accrued Expenses	393,638	440,836	(47,198)
Deferred Revenue-Dues	832,537	845,000	(12,462)
Deferred Revenue-Annual Meeting	3,018,098	3,763,653	(745,555)
Deferred Revenue-Journal	2,238,755	2,280,953	(42,198)
Deferred Revenue-Other	59,690	175,425	(115,735)
Other	31,199	378,311	(347,112)
Net Payable - Foundation	120,783	31,328	89,455

### Total Liabilities

<b>7,771,882</b>	<b>8,815,362</b>	<b>(1,043,479)</b>
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### Net Assets

Unrestricted	20,610,645	18,790,359	1,820,286
Temporarily Restricted	25,000	25,000	0
Permanently Restricted	390,000	390,000	0

### Total Net Assets

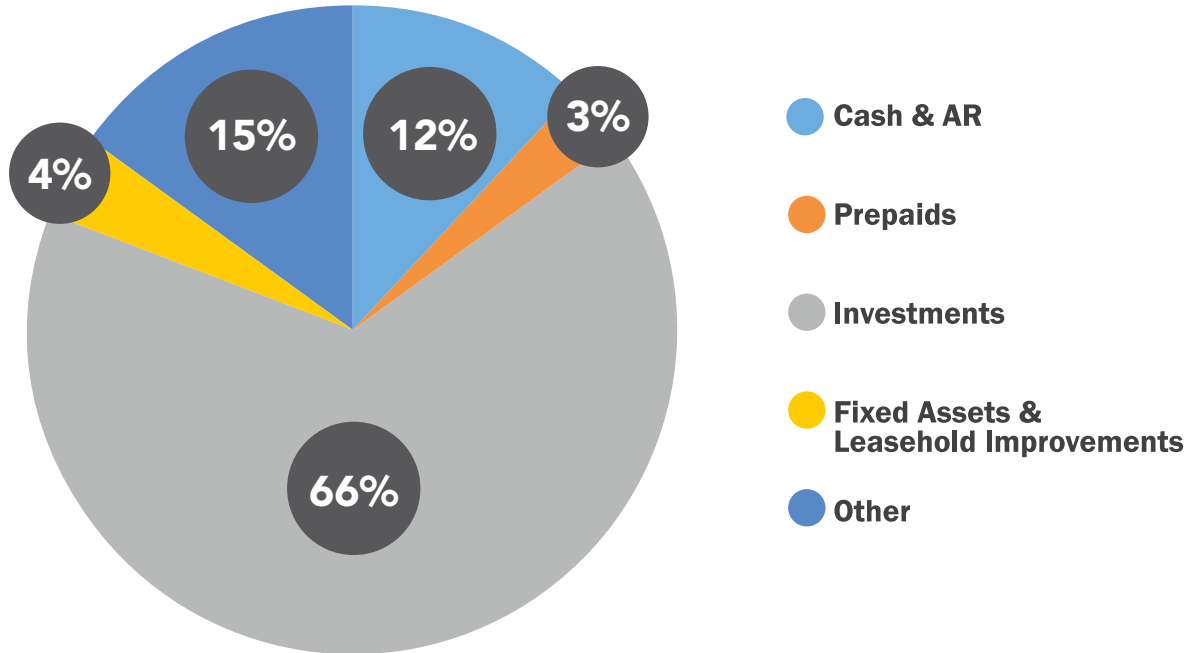
<b>21,025,645</b>	<b>19,205,359</b>	<b>1,820,286</b>
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### Total Liabilities and Net Assets

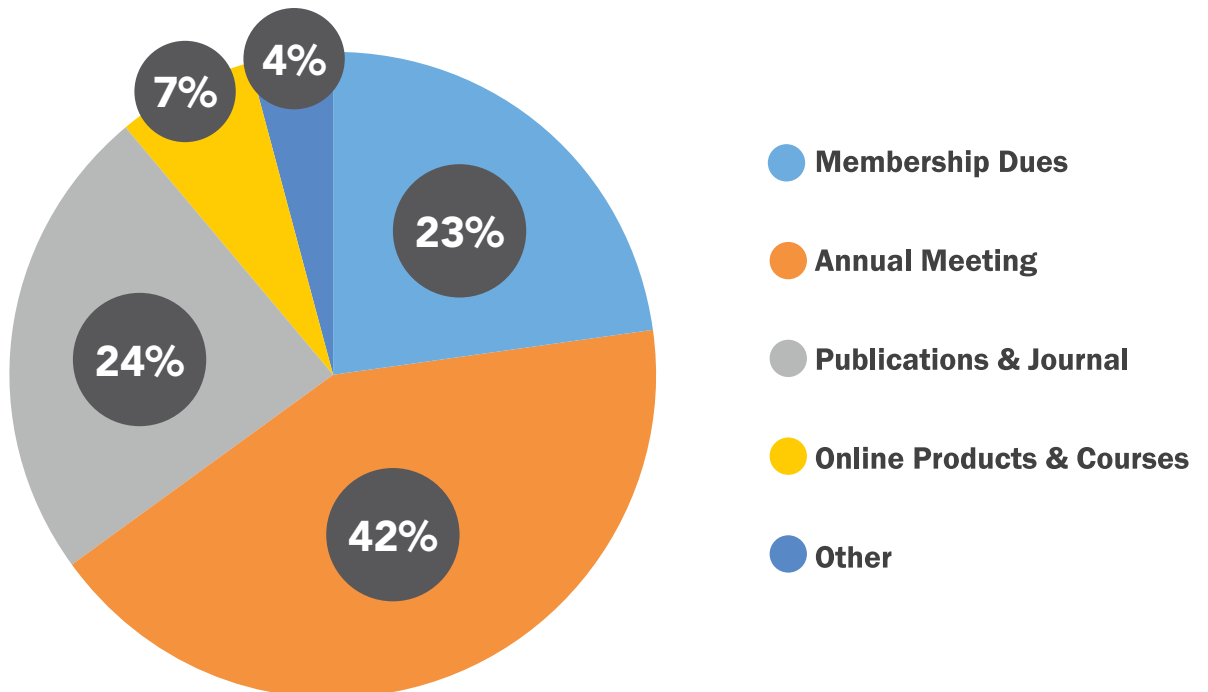
<b>28,797,527</b>	<b>28,020,721</b>	<b>776,807</b>
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## — FINANCE —

### Assets as of August 31, 2017



### FY17 Revenue



## — 2018 PRESIDENT —



**Ashwini D. Sharan, MD**

*President, Congress of Neurological Surgeons*

As I begin my presidential term at the Congress of Neurological Surgeons, I can't help but reflect on what an honor and privilege it has been to be a part of this organization—this community of neurosurgeons—for the past 14 years. I derive a great deal of personal satisfaction working in a specialty as dynamic and innovative as neurosurgery, and continue to be inspired by the volunteer spirit of the CNS, and indeed, the giving of one's self that is so prevalent in our specialty. As the 2018 president, I have the great vantage point of observing the participation of so many committees, each one run by individuals who volunteer their time to lead. The value of their dedication and teamwork is immeasurable. With more than 150 neurosurgeons volunteering to serve on CNS committees, this inspiring "battalion" of volunteers drives my focus for the year ahead: returning to the core values of our specialty—patient care, deliberate practice, and leadership.

Additionally, I desire that each and every one of us, our "community of neurosurgery," remain positive about the changes that are happening around us in the macro-economic environment of health care. In fact, it is my opinion that health care is at an inflection point right now. It's like when rock music began in

the 1960s. It changed the world in a way few other social developments have equaled. I anticipate we'll also see changes in medicine that will give rise to a new era in neurosurgery.

Everyone in our field is familiar with the tremendous advancements going on in several arenas. In neuro-disease care, it is occurring from pneumoencephalography to angiography to CT Scan and MR imaging. "Big data" analytics will augment any physician's ability to consolidate and interpret the thousands of serial and parallel data points that are amassed on any disease condition, and lay out the ability to define a statistical health care course of treatment. Our field has also seen tremendous advancement with visualization tools and augmented technologies in the operating room such as reflective light mirror, surgical loupes, fiber optic head lights, high optic microscopes, and image-guided navigation that have culminated in robotic assistance.

While the time we spend on training to define and improve our surgical skills is not near to being replaced, it is important to wield technology responsibly. As long as we continue to preserve the public trust by providing a safety net that protects our patients in times of trauma, stroke/intracranial bleeding, and routine and omni-prevalent spinal care, we are in good shape!

In the year ahead, the CNS is committed to expanding and refining our educational offerings and services with the express intent of helping you meet the challenges that impact patient care, neurosurgical practice, and leadership in today's health care environment. We have expanded the content of many of our live courses for 2018 and added a new track to our Leadership in Healthcare Program, the Vanguard Leadership Course, designed for mid-career surgeons. This course offers a deeper dive into the economic and administrative challenges faced by neurosurgical leaders in an evolving health care delivery environment. The CNS has also expanded our publications, taking *Operative Neurosurgery* to a full twelve issues a year, increasing the output of our guidelines through

our hard-working Guidelines Committee, and doubling our online learning catalog to bring you new webinars, online courses, and more Nexus cases. The dedicated volunteers on CNS committees will put in thousands of hours this year developing educational tools, publications, and resources that address the clinical and non-clinical challenges impacting your practice. We'll continue this focus into our 2018 Annual Meeting, themed *Mission: Neurosurgery*.

To be truly successful, of course, we need your help in understanding the unique challenges facing members in every subspecialty, practice setting, and career phase. The CNS will also be working hard in 2018 to better engage with members, seeking your guidance in developing new content and understanding your experiences with CNS products and services. If there is a way we can better meet your needs or address a specific challenge, we want to hear about it. Please keep an eye out for our e-newsletters, surveys, and other opportunities to share your ideas. Reach out directly to the CNS office with suggestions, or join a CNS committee to help drive the development of new educational courses and services.

If I asked each and every one of you to focus energy somewhere this year, I would ask that it be on defining quality for our patients and maintaining a leadership posture by setting examples within your local community in a true grassroots manner, spreading the word on the value of neurosurgery. I am sure that when we beat the drum for quality and leadership, it will translate into a better business pattern for neurosurgery. I'm excited to see what's to come.

I know that so many of you share my passion for the advancement of our specialty and the care of our patients. Your membership and participation in CNS courses and events is greatly valued, and I am personally committed to ensuring that the CNS offers the services and resources you need to improve your practice and elevate your career in 2018 and beyond. 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 share the 2017 CNS Annual Report with our membership. This has been an exciting year of energy, focus, and growth, none of which could not have been possible without the leadership, vision, and stewardship of our 2017 CNS President, Dr. Alan M. Scarrow, the 2017 CNS Executive Committee Meeting, and the many CNS Committee members donating countless hours of their personal time to the CNS. We are grateful for their continued dedication to organized neurosurgery and the CNS.

We are also immensely grateful to the thousands of CNS members who continually inspire us to achieve more, and whose loyalty strengthens the core of the Congress of Neurological Surgeons. CNS members are the heart and soul of this organization, and we are extremely proud of the work done this year to better connect with you, and learn about your practice and career challenges so that we may continue to provide the most relevant and innovative programs to meet your needs.

Consistently providing world-class educational events and experiences is a

challenge for any organization, and I take sincere pride in the knowledge that year after year the CNS has led the charge in innovating neurosurgical education. From the launch of four new live courses and our growing online education catalog to relevant programming at the 2017 CNS Annual Meeting in Boston, this year has been one for the record books. This year's Annual Meeting was an experiment in event design. The dynamic CNS Xperience Lounge and the focus on virtual reality, culminating in a world record attempt for most participants in a VR experience, highlight that the CNS was learning right alongside members.

We will continue to build upon these successful lessons learned for years to come. This past year also marked a major milestone for NEUROSURGERY® Publications, which celebrated their 40<sup>th</sup> anniversary. The tireless efforts of our Editor-in-Chief, Nelson M. Oyesiku, MD, PhD, FACS, our Editorial Board, and staff, have led to a truly remarkable impact factor of 4.889 for the flagship journal *Neurosurgery*. Equally impressive was the rapid growth of *Operative Neurosurgery*, which in 2017 moved to a bimonthly publishing schedule with great feedback from readers.

Obviously, we are thrilled to see continued growth amongst our corporate partners and sponsors as well. Critically, our finances remain strong as an organization, allowing us the freedom to branch out into new educational channels and technologies. We are especially grateful to our member companies of the CNS Industry Allies Council (IAC) for the ongoing support of the CNS and its educational mission. These partnerships will help the CNS thrive during our ambitious 2018 education goal of doubling our online learning offerings.

The CNS Executive Committee, the CNS Committee member volunteers, and I would like to extend a sincere thanks to our dedicated and professional staff. The staff is small in number but a force in output, results, and service. We are all very excited about the future of the CNS. The 2018 CNS President Dr. Ashwini Sharan and the 2018 CNS Executive Committee bring with them an unprecedented level of innovation and energy to support the needs of our members. It is a great honor to continue serving the Congress of Neurological Surgeons, the CNS members, the CNS Executive Committee, volunteers, and staff in 2018!

# — 2017 EXECUTIVE COMMITTEE —



*Thank you for an exceptional year!*

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For CNS Members, our beta launch is now available at no cost, and gives you access to more than 200 cases and 13 different approaches.