



CONGRESS OF NEUROLOGICAL SURGEONS

— ANNUAL REPORT 2018 —



CULTIVATING A COMMUNITY
OF NEUROSURGEON LEADERS

EDUCATION

INNOVATION

MENTORSHIP

VOLUNTEERISM



Congress of
Neurological
Surgeons

CONTENTS

- 1 2018 President Message
- 2 Membership
- 5 Neurosurgery® Publications
- 7 Resident Committee
- 8 2018 CNS Annual Meeting
- 12 Education Division
- 13 Online Learning
- 16 Leadership in Healthcare Program
- 19 Washington Report
- 22 Guidelines Program
- 24 CNS Foundation Report
- 26 Corporate Development
- 27 Financial
- 29 2019 President Message
- 30 CEO Message



Congress of
Neurological
Surgeons

— 2018 PRESIDENT —



Ashwini D. Sharan, MD

2018 President, Congress of Neurological Surgeons

At the beginning of 2018, I set out to lead the CNS forward by returning to the core values of our specialty—patient care, deliberate practice, and leadership. With the support of more than 150 neurosurgeon volunteers, the CNS Executive Committee and I were committed to expanding and refining our educational offerings and services with the express intent of helping you meet the challenges of practicing neurosurgery in today's health care environment.

Looking back, I am proud of all we accomplished this year. From expanding the capacity of our Oral Board, Spine Complications and Skull Base Fellows courses to the addition of the new CNS Vanguard Leadership in Healthcare Course, our regional and focused live courses allowed CNS to engage with more members than ever before. And through the dedication and focus of our volunteer faculty, our live course agendas were updated and refined to address critical patient challenges and more effectively address indications for surgery.

The expansion of our online learning catalog and new webinar series delivered valuable clinical and non-clinical content to a worldwide audience and created new CME opportunities for our members here in the US. The Recognition for Participation in Neurosurgical Education program was introduced to recognize our international members for their participation in online neurosurgical education. And the growth of the Nexus platform has put hundreds of neurosurgical cases at the fingertips of every surgeon and resident.

All this growth in educational programming, along with the continued efforts of the CNS Guidelines Committee and the *Neurosurgery* editorial board, contributed to the advancement of our specialty and our members' ability to improve patient care. I am truly grateful to every one of the volunteers who committed their time in 2018 to developing content, leading courses, authoring and reviewing articles, reviewing literature, and drafting guidelines.

I am equally grateful to my colleagues on the CNS Executive Committee, from whom I have learned a great deal about hard work, dedication and leadership. It has been an honor to work alongside these men and women for the past 14 years.

I am especially grateful for all of you, our members, for sharing your passion, your ideas, and especially your criticism. You drive the leadership of the CNS to continue taking risks and looking for new ways to serve you.

Remember: We do Neurosurgery because it's hard! Stay committed to transforming lives, excellence in leadership, and using wisely tomorrow's tools and technology.

I thank you for the privilege of serving the CNS. It has been a great honor, and I look forward to seeing you again soon at future CNS events.

Sincerely,

Ashwini D. Sharan, MD

Past-President, Congress of Neurological Surgeons

— MEMBERSHIP —



The CNS is the leader in neurosurgical education and innovation, bringing together neurosurgeons and neurosurgical team members across geographic boundaries, practice settings and career stages to create networks for education and career advancement and to create opportunities for collaborative learning and growth. In 2018, the CNS continued to report member growth across key membership categories. With a total membership of 9,684 members, including 6,573 active (domestic) members and an International membership of 1,293, the CNS has grown its domestic membership year-over-year for eight consecutive years.

The CNS is cultivating a community of neurosurgeon leaders by engaging neurosurgeons in committee work and projects, training them in leadership skills and business acumen and fostering opportunities for mentorship. In 2018, more than 500 neurosurgeon volunteers dedicated their time to CNS courses, educational products and standing committees. These volunteers' passion and enthusiasm ensure that the CNS remains the vibrant organization our members have come to expect, and that our programs and services are relevant across all neurosurgical practice settings.

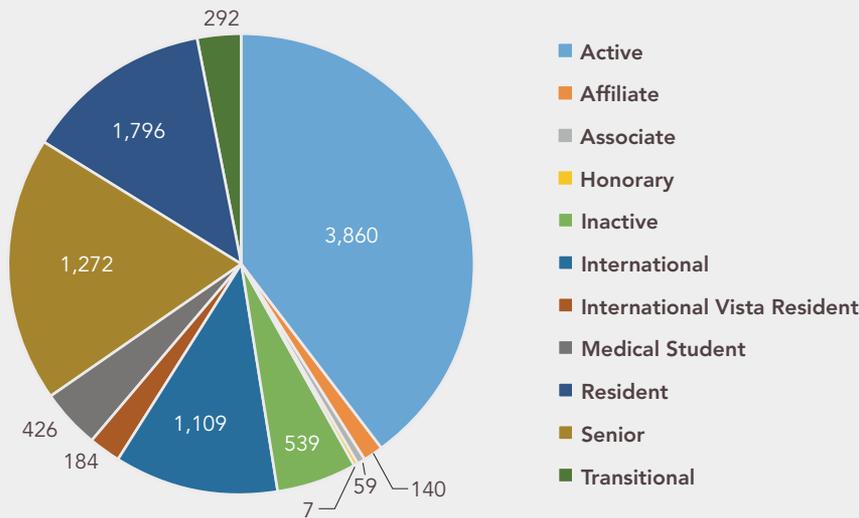


CNS Member Growth



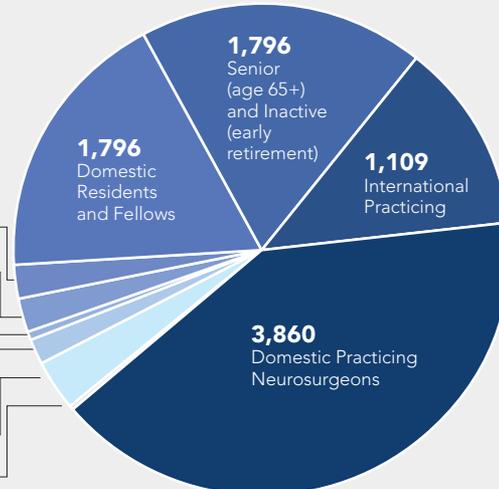
*Excludes Honorary, Senior, and Inactive members

CNS 2018 Membership



CNS Member Data

| Type | Membership |
|---|--------------|
| Domestic Practicing Neurosurgeons | 3,860 |
| Senior (age 65+) and Inactive (early retirement) | 1,811 |
| Domestic Residents and Fellows | 1,796 |
| International Practicing Neurosurgeons | 1,109 |
| International Residents and Fellows | 184 |
| Transitional (recently completed residency) | 292 |
| Associate – Non Neurosurgeon Physicians and Researchers | 59 |
| Affiliate - Non-Neurosurgeon Nurses, Physician Assistants and other Advanced Practice Providers | 140 |
| Medical Students | 426 |
| Honorary | 7 |
| TOTAL | 9,684 |



CNS membership continues to offer the greatest value 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 on clinical and non-clinical topics
- Comprehensive Written and Oral Board preparation resources
- Leadership education, courses, and networking opportunities
- Neurosurgical Practice Guidelines—accessible on cns.org and via the new Guidelines app
- Advocacy and representation in Washington, DC, via the Washington Committee

A true innovator in neurosurgical education, the CNS is constantly seeking new ways to create value for members, delivering content and experiences to match today's practice challenges.



"I started [attending CNS Annual Meetings] in 1985, so that's 33 years—the CNS is still our most productive meeting... I found the Guidelines meetings to be tremendous. Spectacular! Really, really good!"

— Daniel Scodary

"I think the (CNS Spine Complications) course is fantastic and should be mandatory, especially for all young neurosurgeons. "

— Richard Berkman

"(The CNS Skull Base Fellows course) gives an opportunity for most people around the world to learn from some of the most skilled, considering that opportunities for fellowships with them are limited."

— Sydney Rono

"The red journal represents, in many ways, the excellence of the CNS. It has steadily improved its impact factor over the past 10 years, which has not been the case for other journals. Clearly, CNS is doing something very right."

— Timothy R. Smith



— NEUROSURGERY PUBLICATIONS —



The past year has been eventful for NEUROSURGERY® Publications. Under the leadership of Editor-in-Chief, Nelson M. Oyesiku, **Neurosurgery** has continued to focus on bringing readers the very latest developments in science, technology, and medicine in effective, useful, formats and equip them with the knowledge to improve practice and patient care. With that specific mission in mind, we highlight three key features that have allowed the journal to move this mission forward: guidelines, review series, and CNS Spotlight.

- *Neurosurgery* published three CNS sponsored and endorsed guidelines this year: CNS Systematic Review and Evidence-Based Guidelines on the Treatment of Adults With Vestibular Schwannomas¹, CNS Systematic Review and Evidence-Based Guideline on Subthalamic Nucleus and Globus Pallidus Internus Deep Brain Stimulation for the Treatment of Patients with Parkinson's Disease², and CNS Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients with Thoracolumbar Spine Trauma³. Executive summaries of these guidelines are available at the journal guidelines gallery, [oxford.ly/NEU-Guidelines](https://www.oxfordjournals.org/NEU-Guidelines), with links to the full-text which is located at [cns.org/guidelines](https://www.cns.org/guidelines).
- In May 2018, *Neurosurgery* added a third review series to the "Essential Reviews for the Neurosurgeon" collection. Curated by editorial board section editors, these recurring review series provide timely, high-quality reviews of the very latest in neuroradiology, spinal surgery, and now, radiation oncology. Interested readers can learn more about this feature and access individual articles from each series from a single, convenient location by visiting the review series gallery at [oxford.ly/NEU-Reviews](https://www.oxfordjournals.org/NEU-Reviews). In 2019 we look forward to the debut of a fourth review series on biostatistics and methodology.
- In July 2018, *Neurosurgery* debuted CNS Spotlight⁴. As a recurring, monthly feature, CNS Spotlight enhances one article monthly with relevant content from the CNS web of knowledge, curated by a dedicated panel. In addition to enhancing the reader's understanding of the selected article, CNS Spotlight highlights many valuable CNS resources. The current CNS Spotlight selections and the full CNS Spotlight archive can be found at [cns.org/spotlight](https://www.cns.org/spotlight).

Since its official debut as an independent journal in late 2015, **Operative Neurosurgery** has continued to bring readers the most up to date literature on operative practice and technique and in 2018 in particular it achieved several key publication milestones moving to monthly publication in January, receiving its very first Impact Factor in June, being accepted onto PubMed Central in July, and publishing its very first supplement in December, "A Connectomic Atlas of the Human Cerebrum."

As part of its commitment to being a technical journal, **Operative Neurosurgery** has sought to feature advanced content delivery technologies in its pages and on its website under what we have referred to as the "Advanced Media Initiative."

- We were proud to welcome visual and video abstracts in *Neurosurgery* and *Operative Neurosurgery*. These compliment traditional, text abstracts, and allow authors to convey the key message(s) of their articles clearly and succinctly to the readers very quickly. These "enhanced abstracts" equip authors with engaging content that can be shared over social media or mobile devices. Those wishing to submit a visual or video abstract with their submission, can learn more by reading our Instructions for Authors.
- *Operative Neurosurgery* was proud to announce two major partnerships in 2018:
 - In September, the journal published the first of a series of articles featuring HTML5 3D modeling produced by Dr. Aaron A. Cohen-Gadol⁵. The "Neurosurgical Atlas Series" highlights strategic techniques for microneurosurgical operations and features operative videos and intricate anatomical models rendered using HTML5 3D technology. We look



forward to sharing these contributions from the Neurosurgical Atlas in the year to come.

- In October the journal announced a partnership with Surgical Theater whereby surgical videos will be transformed into a 360 virtual reality fly-through video⁶. Those selected will be notified in the decision letter and operational details will be provided. We look forward to bringing virtual reality content to *Operative Neurosurgery* throughout 2019 and beyond!

NEUROSURGERY® Publications Resident Fellowship

We are also committed to identifying additional avenues to engage readers and the neurosurgical community at large. To that end, we welcomed our inaugural Resident Fellow in July 2018. Awarded

to one resident annually (July - June), the NEUROSURGERY® Publications Resident Fellowship exposes residents to scholarly publishing and extends the journals' outreach to residents and fellows. The 2018-2019 fellow, Dr. Saniya Godil (PGY-4, Vanderbilt), has undertaken several projects including, acting as a methodologist reviewer and, organizing resident volunteers in order to expand the journal's, social media reach via Twitter and Facebook. The application process for the 2019-2020 fellowship closed February 4th 2019 (see <https://www.cns.org/publications/fellowship>).

Dr. Oyesiku, Managing Editor, Brandon J. Fiedor, and the CNS Executive Committee would like to thank our authors, reviewers, editorial board, and editorial office staff who have all contributed to the successes in 2018. We look forward to the coming year and the opportunity to share our 2019 accomplishments in these pages next year.

References

- 1 <https://academic.oup.com/neurosurgery/article/82/2/129/4764052>
- 2 <https://academic.oup.com/neurosurgery/article/82/6/753/4925265>
- 3 <https://academic.oup.com/neurosurgery/advance-article/doi/10.1093/neuros/nyy394/5091887>
- 4 <https://academic.oup.com/neurosurgery/article/83/1/2/5038267>
- 5 <https://academic.oup.com/ons/article/15/4/365/5078165>
- 6 https://academic.oup.com/ons/pages/surgical_theater

— RESIDENT COMMITTEE —

The **CNS resident fellowship** is a unique opportunity for neurosurgery residents to get involved in organized neurosurgery, opening an extensive array of volunteer opportunities to neurosurgeons-in-training. The program was started in 2016 and the second cohort of residents graduated this year. During the fellowship, residents were involved in many key CNS projects and committees.

This unique program allows residents to work alongside volunteer leaders in key CNS committees, such as the Education Division and the Congress Quarterly Editorial Board, as well as a wide variety of work groups responsible for developing and refining online education. Recent activities include extensive contributions to the Nexus and Neurosurgery Survival Guide (NSG) app, as well as creating new products like the CNS Journal Club Podcasts.

In 2018 a new cohort of 26 residents started the program and the CNS is looking forward to their enthusiasm for volunteerism and energy to take on now project and contribution to organized neurosurgery. We encourage all residents to consider applying for this rewarding program, where your contributions will advance education within the specialty.

This year, we also introduced 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 opened January 2019.

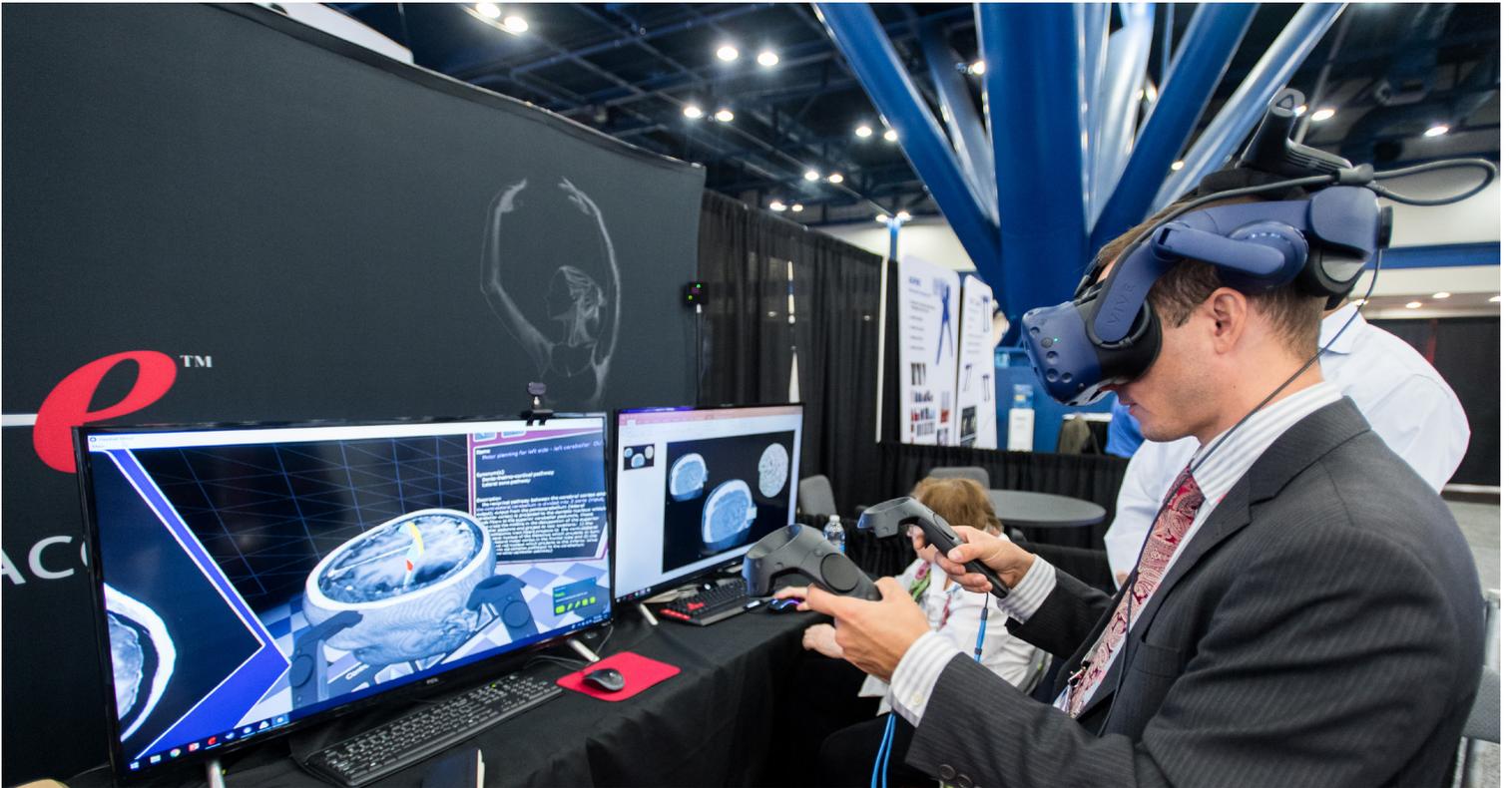
Congratulations to our graduating cohort:

| | |
|-------------------|-------------------------|
| Gabriel Smith | Kumar Vasudevan |
| Elizabeth Le | Thomas Noh |
| Kunal Gupta | Katie Krause |
| Stephen Reintjes | Jonathan Nakhla |
| Rafael Vega | Joseph Spinelli |
| David Dornbos III | Fernando Alonso |
| Ananth Vellimana | C. Rory Goodwin |
| David Hersh | Adrienne Moraff |
| Benjamin Kennedy | Krishanthan Vigneswaran |
| Jay McCracken | Jonathan Pace |
| Brandon Root | Todd Hollon |
| Kimberly Hamilton | Joaquin Hidalgo |
| Pratik Rohatgi | Debraj Mukherjee |

“The CNS Resident Fellowship was a great way to get plugged into a variety of CNS projects. It provided a wide range of activities as well as an opportunity to work with leaders in our field. I strongly recommend it to trainees interested in getting involved in organized neurosurgery.”

— Ben Kennedy, MD Children’s Hospital of Philadelphia, 2018 CNS Resident Fellow and CNS Member since 2017

— 2018 CNS ANNUAL MEETING —



MISSION NEUROSURGERY

The 68th Annual Meeting of the Congress of Neurological Surgeons

October 6-10, 2018
Houston, Texas

The 2018 CNS Annual Meeting brought together neurosurgeons and their team members across geographic boundaries, practice settings and career stages to celebrate meaningful breakthroughs in neurosurgery and interact with the bold new technologies that are driving our specialty forward. Our theme, Mission: Neurosurgery, explored a return to the core values that drive our specialty—patient care, deliberate practice and leadership. Through engaging keynote speakers, innovative scientific presentations and interactive courses and breakout sessions, attendees explored the clinical topics relevant to their practice and learned about future developments in the field.

ANNUAL MEETING HIGHLIGHTS

- **Robotics Symposium** – A new full-day symposium partnered neurosurgeons with engineers, we provide the opportunity to explore the nuances of robotic technologies and give them an opportunity to help shape the future of this technology. Sponsored breakout sessions offered hands-on demonstrations of new robotic technologies.
- The **General Scientific Sessions** blasted off on Sunday afternoon, featuring keynote lectures by neuroscientist and New York Times bestselling author, David Eagleman, and “Leader of the Bionic Age,” Hugh Herr, among others.
- **Case-based sessions** led by expert panels allowed for the presentation and discussion of complicated cases submitted by Annual Meeting attendees. Participants used real-time polling to weigh in on the discussion.
- Seventeen new Practical Courses Saturday and Sunday covered relevant clinical topics across neurosurgical subspecialties and non-clinical topics essential to modern practice.
- The **CNS Xperience Lounge** offered meet and greet sessions with the Honored Guest, special lecturers and Paper of the Year authors, presentations by the Innovator of the Year finalists and a beer and wine networking hour.
- Daily live surgeries drew huge crowds to watch surgeries featuring 4D CT Technology as well as ICG Fluorescence Endoscopy in **Skull Base Surgery**.



ANNUAL MEETING BY THE NUMBERS

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

- **2303** medical registrants gathered in Houston to connect with colleagues and catch up on critical developments in the field.
- Over **300** international attendees attended (*not including Canada or Mexico*)
- **20,962.25** CME Hours were claimed
- **20** CNS US Active Duty Military members took advantage of CNS special benefits such as complimentary registration and free housing

2018 CNS Annual Meeting Honored Guest and Distinguished Honorees



CNS Honored Guest
Robert H. Rosenwasser



CNS Distinguished Service Award Winner
Mark N. Hadley



CNS Founder's Laurel Award Winner
A. Leland Albright

Innovator of the Year

Over 60 submissions for Innovator of the Year this year were vetted by the Scientific Program Committee. The top four finalists were presented on Monday, October 8, in the Xperience Lounge:

– Innovator of the Year –
Novel Extended
Vertebral Registration
for Wrong Level
Spinal Surgery
(NEVER Wrong)
Nirmeen Zagzoog

– Top 4 Finalist –
Rhaeos:
The Wearable
Shunt Monitor
Amit Ayer

– Top 4 Finalist –
Automated Deep
Neural Network
Surveillance of Cranial
Images for Acute
Neurologic Events
Eric Oermann

– Top 4 Finalist –
Stentrode:
Endovascular Brain
Machine Interface
Thomas Oxley

Over 1,500 meeting attendees voted to select Dr. Zagzoog as the winner. **Congratulations!**



CNS Innovator of the Year finalist, Thomas Oxley, presents in the CNS Xperience Lounge.

Resident Abstract Submission Contest

More than 1,450 abstracts were submitted for the 2018 Annual Meeting. Congratulations to the following programs for submitting the greatest number of abstracts!

First Place – Yale University

Second Place – John Hopkins

Third Place – Mount Sinai

Congratulations to the 2018 Abstract Award Winners

Each year, merit-based abstract awards at the CNS Annual Meeting are granted to acknowledge the achievements of residents, fellows, and attending neurosurgeons in various categories.

Pascal O. Zinn
CNS Resident Award

Ezequiel Goldschmidt
Preuss Research Brain Tumor Award

Mohana Rao Patibandla
BrainLab Neurosurgery Award

Wataru Ishida
Rosenblum-Mahaley Clinical Brain Tumor
Research Award

Evgeniya Tyrtova
Integra Foundation Tumor Award

Bradley Dengler
Samuel Hassenbusch Young Neurosurgeon
Award

Michael A. Mooney
Julius Goodman Resident Award

Amar S. Shah
Tumor Section Neuro-Oncology Trainee
Award

Francesco Pucci
Stereotactic and Functional Neurosurgery
Resident Award

Pascal O. Zinn
American Brain Tumor Association Young
Investigator Award

Charuta G. Furey
Sherry Apple Resident Travel Scholarship

Andrew S. Little
Tumor Section Skull Base Surgery Award

Jeffrey P. Greenfield
Columbia Softball Pediatric Brain
Tumor Award

Kristopher T. Kahle
Ronald R. Tasker Young Investigator Award

Joseph P. Antonios
Journal of Neuro-Oncology Award

Robert F. Rudy
Galbraith Award

Paul Page
ThinkFirst Injury Prevention Research Award

SANS Challenge Winners

Thirty-six Residency programs participated in the SANS Challenge qualifying rounds leading up to the Annual Meeting. The top 12 teams completed in live semi-final and final rounds in Houston. Congratulations to these teams for taking home the win!

– **First place** –
**Wake Forest
 University School of
 Medicine**
 James West
 Mark Frenkel

– **Second place** –
**University of
 Cincinnati**
 George Yang
 Zach Plummer

– **Third Place** –
**University of
 Kentucky College
 of Medicine**
 Farhan Mirza
 John Lanm



The CNS was proud to partner again with the Association for Neurosurgical Physician Assistants (ANSPA) to host the 2018 ANSPA Fall CME Meeting in Houston.

2018 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 2017 - June 2018. 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: Bupivacaine field block with clonidine for postoperative pain control in posterior spine approaches: A randomized double-blind trial
 Corresponding Author: Joseph Maarrawi

Paper of the Year: Section Level: Circumferential wall enhancement on magnetic resonance imaging is useful to identify rupture site in patients with multiple cerebral aneurysms
 Corresponding Author: Hidenori Endo

Motor Evoked Potentials (MEPs) Correlate with MRI and Early Recovery after Acute Spinal Cord Injury
 Corresponding Author: Sanjay S. Dhall

Pineoblastoma - The St. Jude Children's Research Hospital Experience
 Corresponding Author: Paul Klimo

Reducing Surgical Infections and Implant Costs via a Novel Paradigm of Enhanced Physician Awareness
 Corresponding Author: Robert M. Friedlander

Granger causality analysis of interictal iEEG predicts seizure focus and ultimate resection
 Corresponding Author: Joseph R. Madsen

Factors Associated With Pre- and Postoperative Seizures in 1033 Patients Undergoing Supratentorial Meningioma Resection
 Corresponding Author: Stephen T. Magill



Dr. Brian J. Dlouhy, the 2016-17 NINDS/CNS Getch Scholar K12 Award recipient, presents his research during the General Scientific Session. The Getch Scholar Award is offered through a unique partnership between the CNS, the CNS Foundation and the the Foundation for the National Institutes of Health (FNIH).

The CNS welcomed its 2018 International Partner, the Brazilian Society of Neurosurgeons (SBN).



— EDUCATION DIVISION —

Under the leadership of Chair Nicholas Bambakidis and Vice Chair Ashok Asthagiri, and in line with our strategic plan, the CNS Education Committee continued to expand our catalog in 2018 with a focus on delivering relevant content for members at all stages of their career. We expanded our live courses to reach more attendees than ever before and expanded our online and mobile resources to create even greater on-demand access to CNS' world class education. This was accomplished through the efforts of 100 volunteer committee and work group members and over 200 live and online course faculty members.



Live Courses by the Numbers

Spine Complications

Held February 1-4 in Park City, UT, the Spine Complications Course offered an intimate setting for the discussion of challenging spine cases and complications. The 2018 course was updated to incorporate a session on guidelines and indications.

2018 Oral Boards course

CNS held two Oral Board review courses in Houston this year—one February 11-12 in conjunction with the Written Boards course and a second October 6-7 in conjunction with the Annual Meeting. Designed for early exam preparation, these courses helped attendees get comfortable with the exam format and identify gaps for further study.

2018 Written Boards Course

Held February 11-12 in Houston, TX, the Written Board Course utilized a case-based approach with integrated real-time testing into an intensive two-day course.

2018 Stroke Symposium

A series of two regional Stroke courses were held May 11 in Chicago and June 22 in Houston. 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.

2018 Skull Base Fellows Course

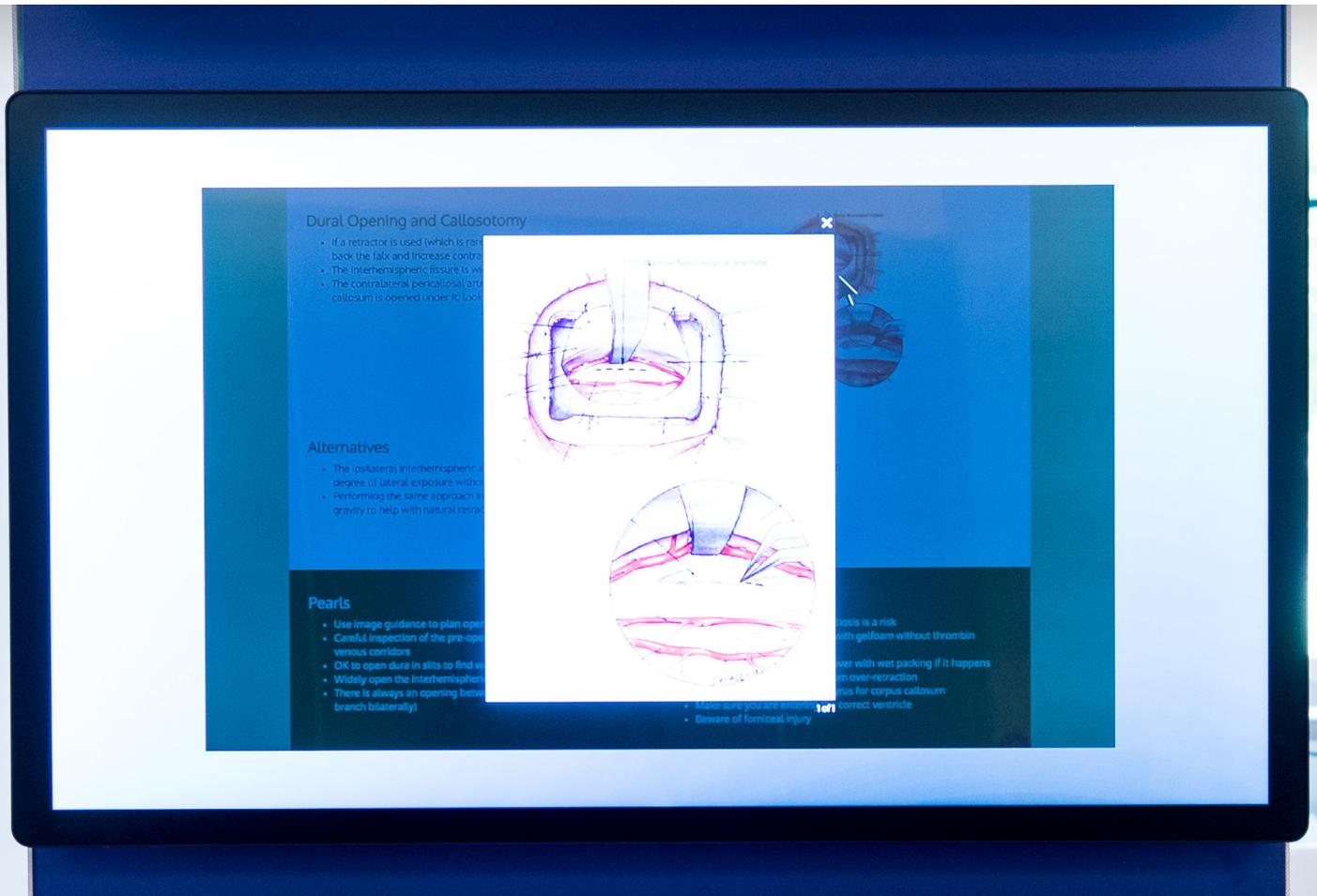
Held in Cleveland, OH August 28-29, the Skull Base Fellows course offered fellows one-on-one guidance from the masters of skull base surgery through case-based discussions and cadaveric dissections. The 2018 course was expanded to accommodate even more fellows.

| | Total Attendance | Total CME credits claimed |
|-------------|------------------|---------------------------|
| | 46 | 679.5 |
| FEBRUARY | 69 | 584.75 |
| OCTOBER | 105 | 584.75 |
| | 72 | |
| CHICAGO, IL | 124 | 61.25 |
| HOUSTON, TX | 141 | 96 |
| | 35 | 164 |

— ONLINE LEARNING —

The CNS hosted 34 live webinars in 2018

The new Written Board Prep webinar series included five live webinars across specialties to engage and prepare residents for their boards.



The Education Division focused tremendous resources this year on expanding CNS' online catalog, introducing 15 new webinars, eight on demand courses and a new SANS module.

Three billing and coding webinars kicked off our New Technology in Neurosurgery webinar series, which will include a total of seven webinars over the next year.

Other hot topics included

- Guidelines: Vestibular Schwannoma
- CNS Trauma, Neurooncology, and Image-Guided Surgery – An international webinar series jointly sponsored by with CNS and SBN

993.7

CME Claimed from
On demand
Online educational
products

NEXUS

Nexus—CNS’ comprehensive case-based repository of neurosurgical operative techniques and approaches—was expanded to include **297 cases** across all neurosurgical subspecialties, thanks to the tireless efforts of our 16 member Nexus Editorial Board and Managing Editor, Maryam Rahman.

More than **220 authors** have contributed cases to the Nexus, most cases including a combination of medical illustration and operative video. Each case efficiently highlights the approach and alternatives, walks through the procedure step by step, and covers the outcomes, pearls and pitfalls.

With its streamlined format, simple navigation and mobile-friendly content, Nexus is proving to be a practical, on-the-go reference for Residents and practicing surgeons alike. In 2018 Nexus was visited over **14,000 times** by users in **130 countries**.



CNS Members walked through SANS and Nexus demonstrations at CNS Central in Houston.



CNS

SANS

Lifelong Learning

SANS

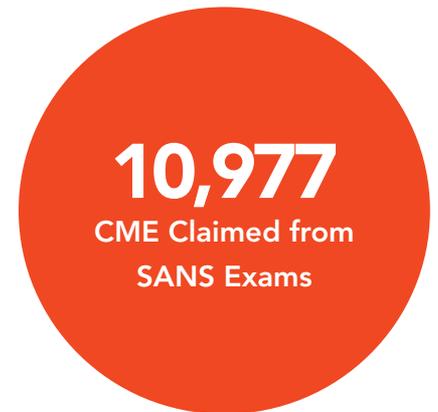
This year we completed the transformation of SANS—CNS’ self assessment in neurosurgery—to a modular series of subspecialty exams, each offering 10 hours of CME.

- 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

For practicing surgeons, these targeted modules make it easy to focus on competencies in your core areas of practice or study up on topics you don’t encounter every day. SANS will track your progress through the exam and claiming CME credit requires a simple click of the button.

We have bundled these modules together in the SANS Written Board Module Bundle as the premier reference for residents in preparing for the ABNS primary exam. We offer Resident Programs the option to license these exams and have access to detailed question reporting.

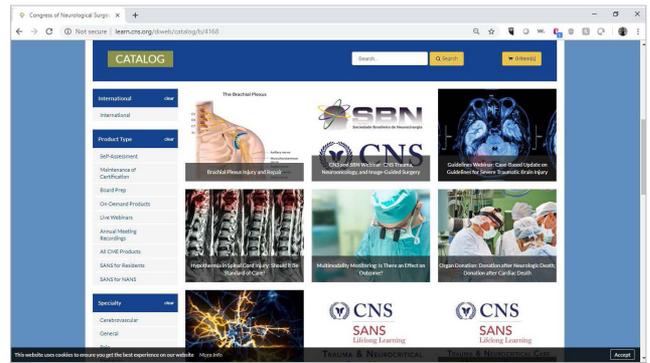
2018 also marked the launch of the new SANS Indications exam, a 150-question module specifically designed to improve diagnostic decision making. This premier product rounds out the SANS catalog, helping surgeons as they enter practice and prepare for the ABNS Oral Examination.



The CNS offered 187 on-demand products in 2018, making neurosurgical education adaptive to members’ practice and accessible on any schedule

New International Certificate program

The Education Division also launched the new **CNS Recognition of Participation in Neurosurgical Education (RPNE)** program in 2018, offering International members a certificate of achievement recognizing active participation in high-quality neurosurgical education. Under the new program, International members earn points for each online educational activity completed and are able to print out the program certificate at 20, 40 or 60 points.



The new RPNE lets international members earn a certificate after completing online courses from the international catalog.

Resident Podcast Committee

We introduced a new CNS Journal Club podcast series, presenting essential journal articles in a classic journal club format with conversations by the authors and other neurospecialists. Ten podcasts were published in 2018 thanks to the hard work of our Resident Podcast Committee:

Thomas Noh

Kumar Vasudevan

Rimal Dossani

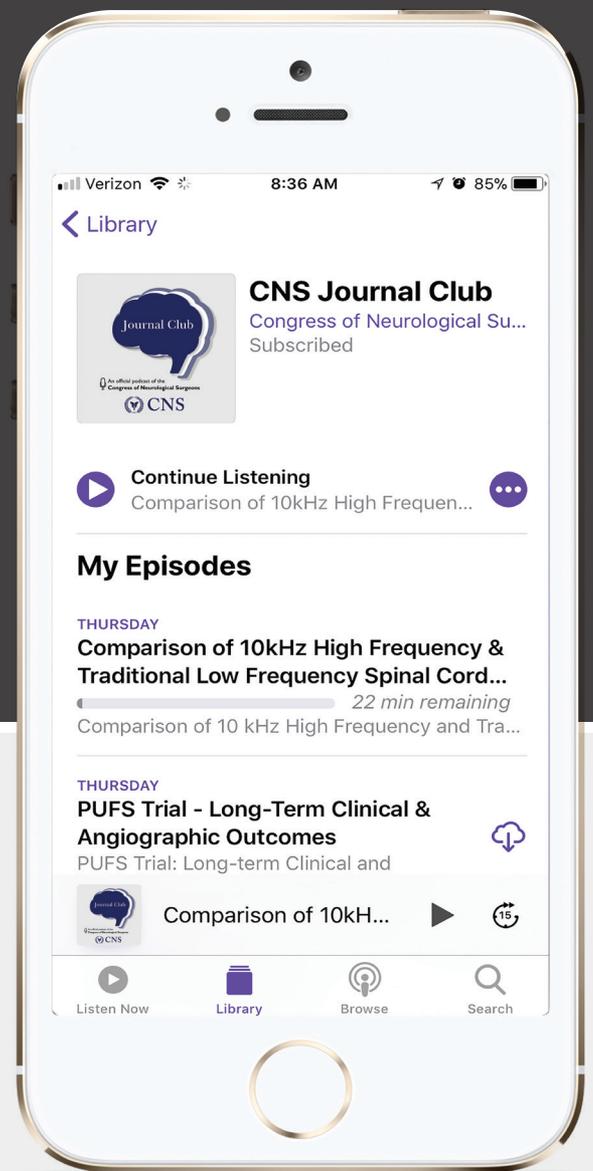
Kimberly Hamilton

Pratik Rohatg

Case of the Month

Case of the Month (COTM) remains one of the CNS 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.

A total of **3,492** users participated in COTM between the months of Sep. 1, 2017 – Aug. 31, 2018.

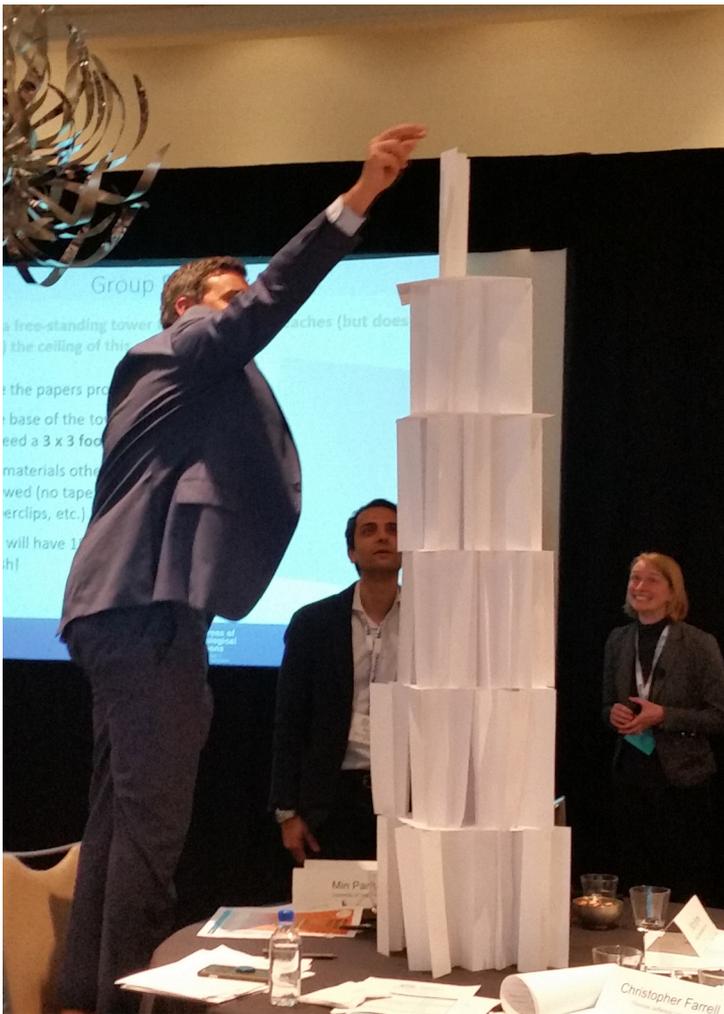


— CNS LEADERSHIP INSTITUTE —

Empowering Surgeons to Master Today's Leadership Challenges



Since its inception, the Congress of Neurological Surgeons has been dedicated to developing leaders in neurosurgery by providing educational resources to help master surgical technique and clinical decision making skills. In the current health care environment, neurosurgeons serve as leaders in their hospitals, healthcare systems, and organizations; the role of a modern neurosurgeon includes healthcare leadership.



Aligning efforts to achieve a common goal, Drs. Christopher Farrell and Nimesh Patel compete against other teams to build the tallest free standing paper tower, as faculty member Dr. Emily Stiehl looks on.

At its core, the CNS Leadership Institute is designed to empower neurosurgeons with the skills and resources needed to become leaders in healthcare during a time of rapid change. The CNS leadership program launched in 2016 focusing on neurosurgeons in their first five years of practice. Given the success of this course, the CNS developed the Vanguard Leadership in Healthcare Course designed for mid-career and senior neurosurgeons pursuing a more leadership advanced curriculum, addressing some of the organizational challenges facing medical centers in an evolving healthcare delivery environment.

In 2018, the CNS received 33 applications for the program. In addition to a CV and personal statement, each candidate 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 11 Leadership Fellows for the original course and 10 Vanguard Leadership Fellows for the new course.



Communicating, influence and group decision process are essential to leadership skills. Pictured are CNS Members and Vanguard Leadership Course participants Peter Kan, Anand Germanwala, and Jeremy Phelps.



The 2018 CNS Leadership in Healthcare Course fellows and faculty.

(The CNS Leadership in Healthcare Course) is eye-opening to the business of medicine. Totally worth it"

— L. Fernando Gonzalez, MD
Duke University, Member since 2009



The 2018 CNS Vanguard Leadership in Healthcare program fellows and faculty

“This experience gave me the chance to improve my leadership skill set in areas such as developing a business plan, understanding negotiation strategies, and exhibiting an executive presence,” said Anand Germanwala, Residency Program Director at Loyola University and 2018 CNS Vanguard Leadership Course participant. “I was able to apply what I learned from real experts to real events in my professional life and achieve success with very challenging opportunities, and I was able to develop contacts and relationships within the CNS and with my co-fellows so that my receiving mentorship does not simply end with this one-year program; it becomes career long.”

The curriculum’s unique mix of health care finance and business acumen along with soft skills like building influence, communication, and presentation skills, helps surgeons understand and communicate across all levels of the organization to more effectively lead teams and advance their projects. Both the original course and the new Vanguard offering covered health system alignment and change management strategies, in order to equip neurosurgeons with the information and skills needed to engage in meaningful dialog with administrators.

This bulk of this content was delivered in an intensive two-day workshop, which introduced analytical tools and facilitated small-group discussion of real-world decision scenarios faced by administrative and neurosurgical leaders. Participants were led in discussion by seasoned course faculty Alan Scarrow and David Langer, as well as new Vanguard Leadership course faculty Richard Byrne and Joseph Cheng. Business and leadership experts from the University of Illinois at Chicago (UIC) and Medtronic provided a critical perspective on relationships and partnerships with industry and the hospital administration.

The program began with a thorough evaluation of the leadership fellows within their environment, by engaging participants in a 360 degree evaluation process and asking them to identify a personal leadership challenge or project to take on over the course of the program year. These projects give the Leadership Fellows a chance to apply the learning from the live course and work with their mentor group to overcome obstacles while working toward their personal and organizational goals.

This year’s program also included a joint networking dinner where participants and faculty from both courses could connect and discuss their leadership challenges. The learning was extended through a series of follow-up webinars, and through individual and peer mentorship surrounding each individual’s leadership project. The end result was 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.

The CNS is proud to continue growing this essential program, and grateful for the continued support we have received from Medtronic, who has supported the Leadership in Healthcare Program since the beginning. The alignment of vision and synergy between our organizations’ resources, have been instrumental in the program’s growth and we look forward to expanding the program further in the years ahead.

— CNS AND THE SECTIONS —

Partnering to Advance Subspecialty Care

As the leader in neurosurgical education, the CNS has established a reputation for delivering the most relevant and cutting-edge educational content to help surgeons expand their knowledge and skills in this rapidly advancing specialty. Likewise, the Sections are widely recognized for their expertise and authority within their respective subspecialties. By partnering together, the CNS and the Sections leverage their strengths to deliver dynamic, engaging Annual Meetings and world-class subspecialty content.

In 2018, the CNS partnered with the Section on Disorders of the Spine & Peripheral Nerves, the American Society for Stereotactic and Functional Neurosurgery, and the Tumor Section to produce three outstanding meetings.

Spine Summit

The 2018 Spine Summit in March welcomed more than 500 attendees to Orlando for four days of science, technology and networking. The Section on Disorders of Spine & Peripheral Nerves partnered with the Brazilian Society of Neurosurgeons (SBN) and Women in Neurosurgery (WINS) for this year's Spine Summit, which offered engaging debates, outstanding plenary sessions, and a hands-on cadaver course, as well as seven special courses on topics ranging from MIS/Navigation and Robotics to Spinal Tumoral Pathology Made Easy.



ASSFN



Biennial Meeting Chairman, Aviva Abosch chats on stage with featured speaker, Bryan Johnson, the founder of Kernel, OS Fund, and Braintree.

The 2018 Biennial Meeting of the American Society for Stereotactic and Functional Neurosurgery (ASSFN), held in Denver this past June, offered three pre-meeting courses and a Sunday morning breakfast seminar before its regular two-day scientific program. The plenary sessions were followed by parallel sessions covering psychiatric neurosurgery, movement disorders, pain, radiosurgery, epilepsy and technology in functional neurosurgery.

assfn American Society for Stereotactic and Functional Neurosurgery

2018 BIENNIAL MEETING

DENVER | June 2-5, 2018

Tumor Section Satellite Symposium

Held in conjunction with the CNS Annual Meeting in Houston, the 2018 Tumor Section Satellite Symposium included a half-day Sawaya Symposium, honoring the career of Dr. Raymond Sawaya, the former Chair at MD Anderson Cancer Institute. The program was rounded out by high impact abstract sessions, General Sessions on OR technology advances, immunotherapy and data technology, as well as three breakout sessions.



Sections by the Numbers

| | | Total Attendance | Total CME credits claimed | Total Nursing credits claimed |
|--|----------------------------------|------------------|---------------------------|-------------------------------|
| 2018 Spine Summit | MARCH 14-17, 2018 ORLANDO, FL | 550 | 4172.5 | 218.75 |
| 2018 Tumor Section Satellite Symposium | OCTOBER 5-6, 2018 HOUSTON, TX | 226 | 857.75 | 14 |
| 2018 ASSFN Biennial Meeting | JUNE 2-5, 2018 DENVER, CO | 363 | 2990.75 | N/A |

— WASHINGTON REPORT —

Neurosurgery Makes Significant Progress Advancing Health Policy Agenda

Through advocacy, policy development and public relations, the Washington Committee and Washington Office have played a fundamental role in advancing key health care initiatives. 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 payers and state and national medical associations. As a result of these interactions, over the past year, organized neurosurgery has achieved a variety of advocacy successes, including:

- **Improved the Health Care Delivery System.** Congress passed legislation funding the Children's Health Insurance Program (CHIP) for ten years. The continuing funding resolution ([H.R. 195](#)) was signed into law on Jan. 22, 2018, and the Bipartisan Budget Act ([H.R. 1892](#)) was signed into law on Feb. 9, 2018. Also, the so-called Cadillac tax on generous health insurance plans was suspended for an additional two years to 2022.



2019 CNS President, Ganesh Rao, with former House Ways and Means Committee chair, Rep. Kevin Brady, during the CNS Annual Meeting in Houston.

- **Supported Quality Resident Training and Education.** A growing number of members of Congress cosponsored the Resident Physician Shortage Act ([S. 1301](#) / [H.R. 2267](#)), which would provide Medicare funding for an additional 15,000 residency training slots.
- **Abolished the Independent Payment Advisory Board (IPAB).** After nearly a decade of advocacy, we helped lead a successful effort to repeal the IPAB, which was accomplished in the Bipartisan Budget Act ([H.R. 1892](#)). If implemented, this 15-member government board was empowered to make Medicare payment cuts that would have resulted in significant reductions in neurosurgical reimbursement.
- **Addressed the Medical Liability Crisis.** The Washington Committee moved the medical liability reform ball further down the field on several fronts. The House of Representatives passed the Protecting Access to Care Act ([H.R. 1215](#)), which included key reforms — including a cap on noneconomic damages — modeled after those in place in California and Texas. The president also signed into law the Sports Medicine Licensure Clarity Act ([S. 808](#) / [H.R. 302](#)) on Oct. 5, 2018, which clarified medical liability rules for physicians traveling with sports teams. Additionally, progress was made to provide physician volunteers with medical liability protections in the event they render care during a national emergency or disaster, as the Good Samaritan Health Professionals Act ([S. 781](#) / [H.R. 1876](#)) advanced in Congress. Finally, members of Congress demonstrated their support for protecting physicians from medical liability claims when they provide services mandated by the Emergency Treatment and Labor Act (EMTALA) by cosponsoring the Health Care Safety Net Enhancement Act ([S. 527](#) / [H.R. 548](#)).
- **Continued Progress with Medical Innovation.** To ensure that the U.S. continues to lead the world in medical innovation, the Washington Committee helped lead an effort to suspend the medical device excise tax for an additional two years. This provision was included in the continuing funding resolution ([H.R. 195](#)).
- **Restructured Medicare Quality Improvement Programs.** Implemented as part of the Medicare Access and CHIP Reauthorization Act ([MACRA](#)), Medicare's Quality Payment Program (QPP) continues to be a complicated check-the-box program, which is burdensome to physicians and fails to help improve quality. The Joint Washington Committee worked with organized medicine to include in the Bipartisan Budget Act ([H.R. 1892](#)) additional flexibility to minimize penalties for years 2021-23 and eliminate the requirement that electronic health record (HER) standards become more stringent over time, while also maintaining EHR hardship exemptions.



CNS Executive Committee member, Maya Babu, meets with Rep. Seth Moulton, (D-Mass.), during the Alliance of Specialty Medicine legislative conference.

- **Championed Fair Reimbursement.** Due to the considerable advocacy efforts of the Washington Committee, no changes in global surgery fees will be forthcoming in 2019. CMS' global surgery code data collection initiative was poised to produce cuts in neurosurgical reimbursement by at least 25 percent.
- **Advocated for Trauma Care.** The CNS continued to urge Congress to provide the full funding for trauma and emergency care regionalization programs. The House Energy and Commerce Committee passed the Pandemic and All-Hazards Preparedness Reauthorization Act ([H.R. 6378](#)), which would reauthorize several preparedness and response programs for five years. The bill also included [H.R. 880](#), the MISSION Zero Act, which would assist U.S. military health care providers in maintaining a state of readiness by embedding military trauma teams and providers in civilian trauma centers.

In addition to the progress highlighted above, the Washington Committee and its subcommittees accomplished the following:

- **2019 Medicare Physician Fee Schedule.** Overall, in 2019, CMS estimates that payments to neurosurgery will not change. Due to the advocacy of the Joint Washington Committee cuts in the professional liability values were prevented and sweeping changes to evaluation and management (E/M) codes were modified and delayed. Both proposals would have resulted in a \$20 million Medicare pay cut for neurosurgery.
- **Reversed a National Correct Coding Initiative Spine Code Edit.** A National Correct Coding Initiative (CCI) edit incorrectly prohibited the reporting of CPT codes 63047 and 22633 at the same interspace, inappropriately bundling decompression and lumbar fusion. The AMA *CPT Assistant* publication incorrectly confirmed the edit in October 2016, leading several private payors including Aetna and Cigna to cite the publication as a reason to adopt the edit. Through vigorous advocacy, Coding and Reimbursement Committee leaders led a multi-specialty coalition to successfully convince the AMA to issue a correction in the May 2018 *CPT Assistant*. Efforts to get payors to reverse this edit are ongoing.
- **Corrected Co-Surgeon Coding for Craniosynostosis.** Joint Coding and Reimbursement Committee leaders successfully advocated for CMS to reverse course and Medicare will now reimburse a co-surgeon for the craniosynostosis codes (61550, 61552, 61556, 61557, 61558 and 61559) when appropriately documented.
- **Championed Appropriate Coverage of Neurosurgical Services.** The Coding and Reimbursement Committee's Rapid Response Team (RRT) continued to address numerous national and state coverage issues. For example, in August 2018, Aetna updated its [policy](#) to extend coverage for expandable spinal cage devices from L2 to S1. In addition, Anthem published an updated coverage policy for Deep Brain, Cortical, and Cerebellar Stimulation, incorporating many recommendations from neurosurgery, such as dropping the criteria that an individual must try and fail vagus nerve stimulation (VNS) first before coverage is allowed for responsive neurostimulation (RNS). In May 2018, the Washington State agreed to cover open decompression and minimally invasive techniques that include laminectomy, laminotomy, foraminotomy and discectomy. Finally, the Washington Committee successfully advocated for Medicare to cover (in most regions of the country) Magnetic-Resonance-Guided Focused Ultrasound Surgery (MRgFUS) for Essential Tremor.



CNS Executive Committee member, Clemens M. Schirmer, meets with Rep. Phil Roe, MD (R-Tenn.), chair of the House Doc Caucus, during the Alliance of Specialty Medicine legislative conference.



CNS Executive Committee member, Clemens M. Schirmer, meets with Rep. John Joyce, MD (R-Pa.), during the Alliance of Specialty Medicine legislative conference.

- **FDA Adopted Opioid Recommendations.** In January 2018, Drugs and Devices Committee chair, **Robert F. Heary, MD**, appeared before the FDA at a hearing on opioid Risk Evaluation and Mitigation Strategies (REMS). Dr. Heary presented testimony developed by the Drugs and Devices Committee and the Section on Pain that included a recommendation that FDA facilitates standardization of prescription drug monitoring programs (PDMPs) to make checking easier for physicians. Adopting our suggestions, in March, FDA Commissioner **Scott Gottlieb, MD**, called for a national electronic prescribing platform to help combat the opioid crisis and to help ensure that physicians get prompts the moment they are writing a prescription. This will ensure appropriate prescribing and allow public health officials to collect nationwide data on opioid and controlled substance use.
- **Ensured the Safety of Intracranial Aneurysm Treatment Devices.** The Drugs and Devices Committee, in coordination with the Section on Cerebrovascular Neurosurgery, developed a statement for the FDA Neurological Devices Advisory Panel meeting on March 1, 2018, recommending issues to consider in the evaluation of clinical study data to support the safety and effectiveness of intracranial aneurysm treatment devices. Attending on behalf of the Joint Washington Committee and the Cerebrovascular Section were **Kevin M. Cockroft, MD**; **Robert E. Harbaugh, MD**; **J Mocco, MD, MS**; **Clemens M. Schirmer, MD**; **Adnan H. Siddiqui, MD, PhD**; and **Babu G. Welch, MD**. Neurosurgeons serving on the panel included **Julie G. Pilitsis, MD, PhD**; **Kadir Erkmen, MD**; **William W. Ashley, MD, PhD**; and **Gregory Thompson, MD**. **Christopher M. Loftus, MD**, was at the meeting in his role as Chief Medical Officer for the FDA Division of Neurological Devices.
- **Millions Appropriated for Injury Treatment and Prevention.** The Washington Committee successfully advocated for increased funding for injury prevention and treatment and emergency preparedness. Also, on Dec. 21, 2018, the president signed into the Traumatic Brain Injury Program Reauthorization Act ([H.R. 6615](#)), which renews federal brain injury programs and authorize more than \$19 million annually for federal and state programs.
- **Communications Outreach.** Beyond its direct grassroots advocacy, the Washington Committee garnered support for neurosurgery’s health policy positions by carrying out a nationwide earned media campaign and by providing the media with timely information that was used for their reporting. The Washington Office’s traditional media/communication efforts included Op-Eds, letters to the editor, radio “tours” and desk-side briefings with reporters from the national and Washington, DC press. In addition, the Washington Office’s digital media platforms continued to see significant expansion and have garnered more than 524 million individual impressions and have amassed a subscription audience of more than 130,000. These communication tools include:

 - [Neurosurgery Blog: More Than Brain Surgery](#), a web-based opinion and perspective column, offering insights and perspective on contemporary health issues as they relate to organized neurosurgery.
 - Various social media platforms are used to gain greater visibility for neurosurgery’s advocacy efforts, including [Twitter](#), [Facebook](#), [Instagram](#), [LinkedIn](#), [Tumblr](#), and [YouTube](#).



Dr. John Hurlbert presents an update on the Guidelines for Acute Cervical and Thoracolumbar Spine Trauma during the CNS Annual Meeting.

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.

2018 Program Highlights

- Nine guideline topics are currently in development
- Recently published guidelines include Deep Brain Stimulation for Parkinson's Disease, Vestibular Schwannoma, Thoracolumbar Trauma and Update to Metastatic Brain Tumors
- Topics to be published in 2019 include Spina Bifida, Spine Metastases and Neuroablation for Cancer Pain



Guidelines Vice Chair, Brian Hoh and Chair Nader Pouratian

CNS Guidelines App

The CNS continues to successfully support the CNS Guidelines app (developed in 2017, thanks to a generous grant from the Section on Neurotrauma and Critical care to the CNS Foundation.). The Guidelines app has over 5600 downloads and continues to be widely disseminated and utilized.

This free app, available for download on Apple and Android devices, includes guideline recommendations and topic overviews for all CNS-produced guidelines in six specialty areas. Through the app, clinicians have immediate, at the point-of-care access to 16 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
- Thoracolumbar Trauma

Stereotactic and Functional

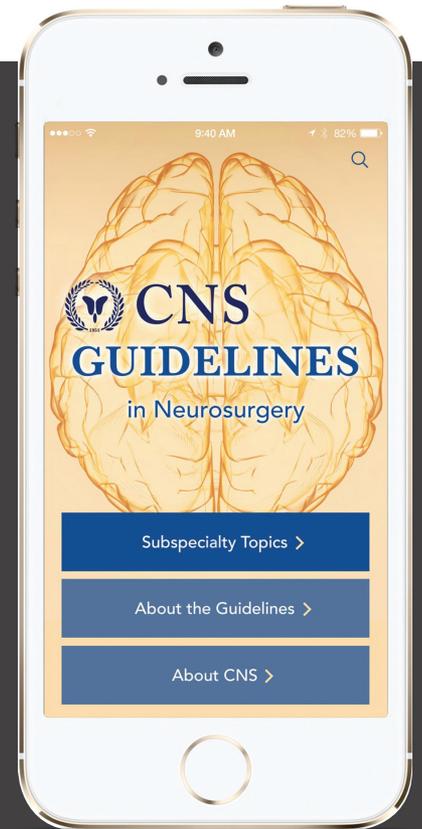
- Deep Brain Stimulation for Parkinson's Disease
- Deep Brain Stimulation for OCD

Tumor

- Low Grade Glioma Guidelines
- Newly Diagnosed Glioblastoma
- Nonfunctioning Pituitary Adenoma
- Progressive Glioblastoma
- Vestibular Schwannomas
- Update to Metastatic Brain Tumor

Trauma

- Thoracolumbar Trauma
- Severe Traumatic Brain Injury for Adults (*used with permission from BTF*)



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

Guidelines-based Educational Initiatives

CNS high-quality clinical practice guidelines continue to provide cutting-edge educational content. The 2018 CNS Annual Meeting featured Guidelines Sessions, which were heavily attended and included presentations on these recently published and upcoming guideline topics:

Nonfunctioning Pituitary
Adenoma

Vestibular Schwannoma

Acute Cervical Spine Injuries

Thoracolumbar Spine Trauma

In 2018, the CNS Executive Committee took strategic steps to build the CNS Foundation's essential infrastructure and further empower the charitable nonprofit for the long-term.

Dr. Elad I. Levy accepted his three-year appointment as Chairman of the CNS Foundation and immediately began the task of recruiting a diverse working board.

In addition to building a Foundation board, Dr. Levy and CNS staff updated the CNS Foundation's mission statement and initiatives to take philanthropy to a new level of outreach and impact.

The CNS Foundation's working philanthropic mission statement is to improve worldwide patient health by supporting innovative programs that allow neurosurgeons to collaborate globally as researchers, learners, educators and caregivers.

Three primary initiatives are the CNS Foundation's focus: International Philanthropy, Innovative Clinical Research and CNS Guideline Development.

INNOVATIVE RESEARCH:

The CNS Foundation is grateful for its partnership with Congress of Neurological Surgeons and the Foundation for the National Institutes of Health (FNIH). Together, these organizations fund the biennial NINDS-CNS Getch Scholar K12 Award, one of neurosurgery's most prestigious awards.

We are proud to announce the 2018-2019 Getch Scholar Award recipient is Assistant Professor of Neurological Surgery Babacar Cisse, M.D. Ph.D. Dr. Cisse is the principal investigator of a research laboratory that studies the interactions between the immune system and brain tumors. Dr. Cisse's research focuses on how brain tumors develop, grow, and become malignant.



Dr. Babacar Cisse, received the 2018-19 NINDS-CNS Getch Scholar K12 Award for his work on brain tumors.

INTERNATIONAL PHILANTHROPY:

A generous donation to the CNS Foundation from the TransAtlantic Education Foundation made the Foundation's 2018 international observership possible. Dr. Ricardo Komotar of The University of Miami mentored Dr. Alexis Morell MD, from Argentina for what he called a, "highly productive" experience.

"I have learned not only about neurosurgery but also about teamwork, commitment, professionalism, and leadership. I think that transmitting those values is a critical part of education and mentorship in Neurosurgery."

- Alexis Morell MD

The CNS Foundation is looking toward 2019 as a year of gratitude for the many donors who have supported this great Head Start since its founding in 2012. Share in our philanthropic vision to improve worldwide patient health, by considering a donation to the CNS Foundation at in your 2019 giving plan. Visit www.cns.org/foundation to learn more.

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.

Thanks to that industry support, we were able to continue to offer all courses from 2017, and also expand our Leadership Institute.

We would like to thank the following companies for their support of our 2018 Live Courses:

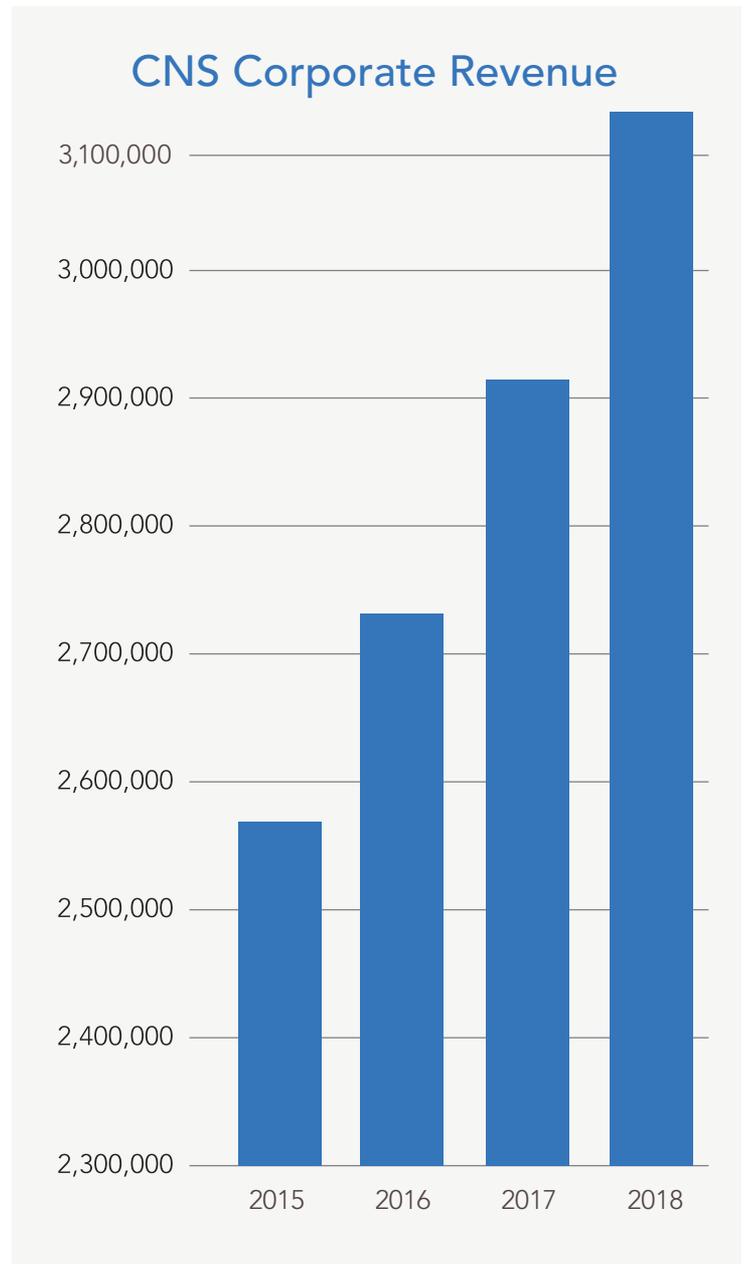
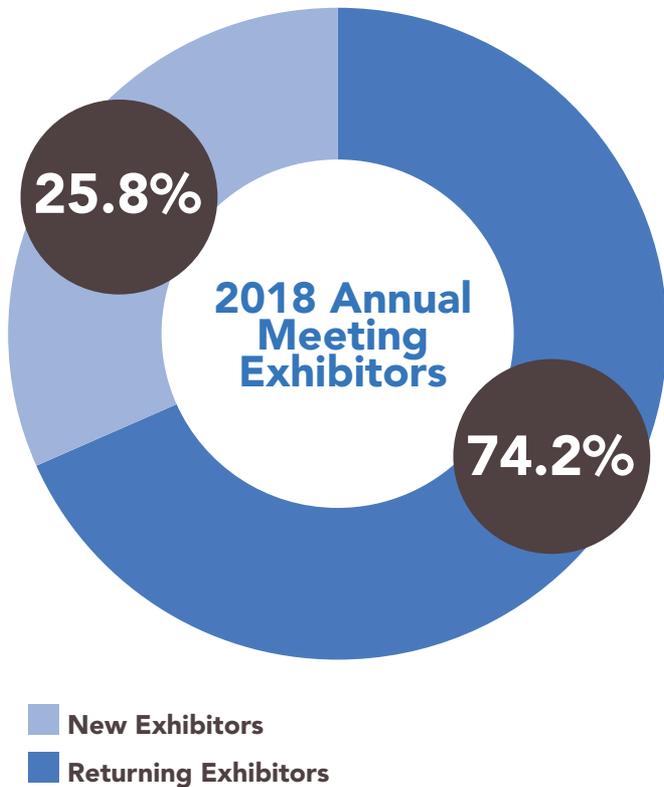
- **Spine Complications:** Medtronic, DePuy Synthes, Innovaxis, Providence Medical, SeaSpine, and NuVasive
- **Acute Stroke Symposia:** MicroVention, Medtronic, Cerenovus, Stryker, Genentech, and Amgen
- **Skull Base:** Integra, Medtronic, KLS Martin, Apex Medical, Aesculap, Carl Zeiss, and Sutter Medical Technologies
- **Leadership Institute:** Exclusive supporter Medtronic

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 2018, the CNS focused on refining opportunities for industry participation. This resulted in 56 companies that increased their year round support.

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.



— INDUSTRY ALLIES COUNCIL —

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 2018, the CNS Executive Committee gathered with the leaders of our 14 IAC partner companies twice, on April 30, in New Orleans, 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

Canon
CANON MEDICAL SYSTEMS USA


CERENOVUS
PART OF THE Johnson-Johnson FAMILY OF COMPANIES

Codman
SPECIALTY SURGICAL
A DIVISION OF INTEGRA LIFESCIENCES

 **DePuy Synthes**
COMPANIES OF Johnson-Johnson

OLYMPUS
Your Vision, Our Future

synaptive 

INDUSTRY ALLIES COUNCIL


arbor
PHARMACEUTICALS, LLC.

KLS martin
GROUP

 **Microvention**
TERUMO

Penumbra 

ZEISS

 **ZIMMER BIOMET**

— FINANCIAL REPORT —

Statement of Financial Position December 31, 2018

2018 Assets

| | Current | Aug 2017 | Increase/ (Decrease) |
|------------------------------|-------------------|-------------------|----------------------|
| CNS Cash | \$2,250,170 | \$3,181,483 | (\$931,313) |
| Accounts Receivable | 812,305 | 135,135 | 677,170 |
| Pre-Paid Expenses & Deposits | 291,974 | 856,322 | (564,347) |
| Meeting Mgmt Prepays | 85,586 | 3,537 | 82,050 |
| Beneficial Interest | 407,000 | 407,000 | 0 |
| Due from CANE, Net | 22,818 | 16,947 | 5,871 |
| Investments | 18,314,382 | 19,123,529 | (809,147) |
| Equipment & Software, Net | 819,553 | 1,156,704 | (337,151) |
| Joint Section Assets, Net | 3,889,080 | 3,845,420 | 43,660 |
| Total Assets | 26,892,868 | 28,726,077 | (1,833,208) |

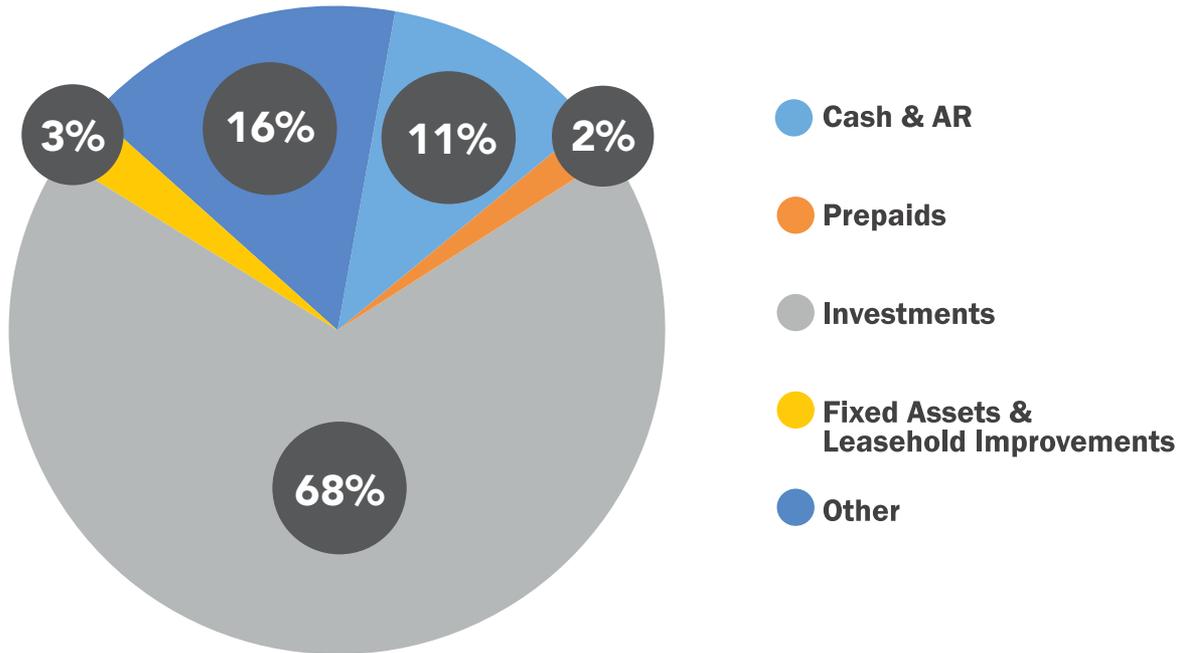
2018 Liabilities

| | | | |
|------------------------------------|------------------|------------------|--------------------|
| Accounts Payables | 218,230 | 892,720 | (674,490) |
| Deferred Rent | 159,182 | 197,710 | (38,527) |
| Accrued Expenses | 401,150 | 393,638 | 7,512 |
| Deferred Revenue-Dues | 349,605 | 832,537 | (482,932) |
| Deferred Revenue-Annual Meeting | 262,225 | 3,018,098 | (2,755,873) |
| Deferred Revenue-Journal | 1,089,325 | 2,238,755 | (1,149,430) |
| Deferred Revenue-Other | 127,230 | 74,390 | 52,840 |
| Meeting Mgmt: DSPN, ASSFN, & Tumor | 531,204 | 31,199 | 500,006 |
| Net Payable - Foundation | 14,377 | 120,783 | (106,406) |
| Total Liabilities | 3,152,528 | 7,799,830 | (4,647,301) |

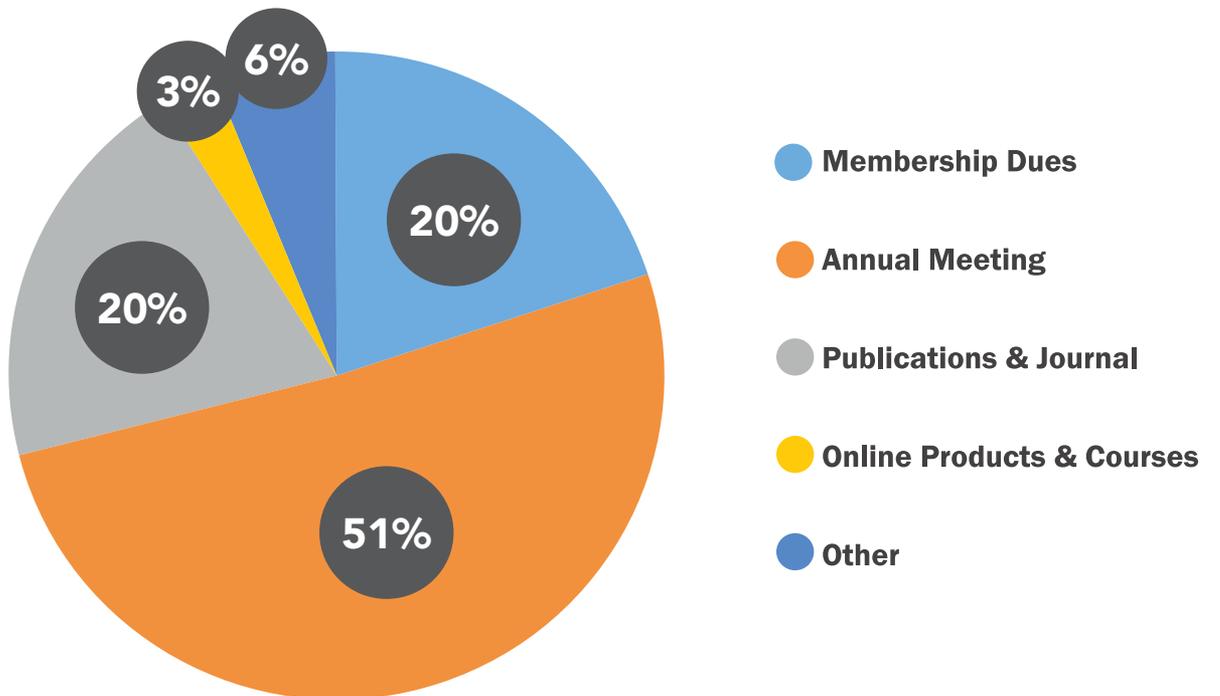
Net Assets

| | | | |
|---|-------------------|-------------------|------------------|
| Total Net Assets | 23,740,340 | 20,926,247 | 2,814,093 |
| Total Liabilities and Net Assets | 23,740,340 | 20,926,247 | 2,814,093 |

Assets as of December 31, 2018



FY18 Revenue



— 2019 PRESIDENT —



Ganesh Rao, MD

President, Congress of Neurological Surgeons

The Congress of Neurological Surgeons is approaching its 70th year. Founded in 1951, the organization continues to serve neurosurgeons worldwide. The 2018 Annual Meeting “Mission:Neurosurgery” was a resounding success. Our immediate Past-President, Ashwini Sharan held an outstanding and inspirational meeting in my hometown of Houston. For those of you able to attend, I hope you had some time to enjoy the Space City and the recent downtown rejuvenation. The Annual Meeting team led by Drs. Brian Hoh, Alexander Khalessi and Nader Pouratian did a spectacular job creating a unique experience for attendees. There was a real feeling of excitement with new offerings and outstanding original science being presented.

These have been transformative times for the CNS. Our official journal *Neurosurgery* just completed the spinoff of *Operative Neurosurgery* which now has its own International standard serial number and impact factor. We have been fortunate to have a well-regarded publication. *Operative Neurosurgery* was originally a quarterly supplement. Since it was launched as a

standalone journal, it is now published monthly. Submissions to both journals have climbed significantly over the last few years. Under the guidance of Dr. Nelson M. Oyesiku, we are looking forward to new innovations.

We continue to see incredible use of the CNS Nexus. This is a free online repository (www.cns.org/nexus) of operative techniques that can be used by trainees and practicing physicians alike. Nexus is designed for neurosurgeons to find a case similar to one they are considering performing. Nexus has contributions from hundreds of neurosurgeons and was created by Drs. Nick Bambakidis and Peter Nakaji. Their contributions were considered so important that the CNS awarded them the educational innovators of the year. This new award was bestowed upon them at the 2018 CNS Annual Meeting.

The CNS also continues to develop its philanthropic efforts with the CNS Foundation. The board recently endowed the Foundation with one million dollars. This endowment is intended to help us maintain our ability to offer the K12/Getch Scholar Award. The Getch Award remains unique in neurosurgery—the only mentored award, sponsored by the National Institutes of Health and a major neurosurgical organization that allows the holder to stay at the institution where they trained. Our 2016-17 awardee, **Dr. Brian Dlouhy** from the University of Iowa presented his work on SUDEP at the 2018 Annual meeting. The Foundation also supports practice guidelines. The CNS has a robust guidelines production staff at the CNS headquarters office to help our sections and guidelines committee volunteers develop and produce practice guidelines. These guidelines have been used not only to help neurosurgeons manage their patients with the best available data but also to help fight back against payors who may deny coverage for a procedure—even when that procedure is justified by evidence-based medical practice. We have been very fortunate that

our membership has recognized the value of the CNS Foundation and charitable contributions have helped to support the mission. We expect to expand this offering soon with our partnership with the NIH to support more promising young neurosurgeon/scientists.

Preparations for the next annual meeting are already underway. Under the leadership of Drs. Alex Khalessi, Nader Pouratian and Brian Nahed, the 2019 CNS Annual meeting is bound to be a spectacular event. The theme is The Age of Reason, a provocative title, chosen to highlight evidence-based practice in neurosurgery. We will be featuring special speakers from a variety of fields to highlight the theme and bring their perspective to our membership. We will also be featuring original clinical and basic science from our membership, and will provide a new category for scientific exchange: operative technique. We encourage you to submit your original science and novel operative approaches.

We are looking forward to an exciting year ahead. The CNS has you covered with outstanding online educational products, industry-leading publications, and exciting live courses including the upcoming 2019 CNS Annual Meeting.

— MESSAGE FROM THE CEO —



Regina Shupak

CEO, Congress of Neurological Surgeons

Each year, I look forward to preparing this Annual Report and presenting it on behalf of the Congress of Neurological Surgeons to you, our members. It is a great honor and privilege to serve you every day and I am proud to share with you these highlights from 2018.

First, I must acknowledge that none of these accomplishments would have been possible without the leadership of our 2018 CNS President, Dr. Ashwini Sharan, the CNS Executive Committee, and the hundreds of volunteer surgeons serving on CNS committees and work groups. We are so grateful for their time and commitment to neurosurgical education.

As always, we are also grateful to our ever growing membership. You continually inspire us to achieve more, and your engagement and loyalty makes the CNS a stronger, more vibrant organization. We continue to value your membership and your engagement above all else and we are proud of the work done this year to deliver relevant and innovative programs that address your practice challenges.

We set out in 2018 to refine and expand our most valued educational programs to deliver more world class content to an even greater audience, and I am proud of all that was accomplished over the course of the year. From the launch of the new Vanguard Leadership in Healthcare program to the tremendous growth of our Nexus platform, we introduced new content to help our members improve their clinical practice and advance their career. The expansion of our online catalog allowed us to reach members around the globe, while growth in our live courses meant we were able to engage face to face with more members than ever.

This was also a great year for our publications and guidelines teams, with the addition of three new guidelines and a new review series, as well as the expansion of Operative Neurosurgery to a monthly format. These efforts, along with the addition of visual and video abstracts, the CNS Spotlight and the expansion of our Guidelines App have ensured that this valuable content reaches all our members, exactly when and where they need it.

Once again, we are thrilled to see continued growth amongst our corporate partners and sponsors. 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 and continue to expand our educational catalog in the years ahead and continue exploring new programs and technologies on behalf of our membership.

The CNS Executive Committee, the CNS Committee member volunteers, and I would like to extend a sincere thanks to our dedicated and professional staff. We are all very excited about the future of the CNS. The 2019 CNS President Dr. Ganesh Rao and the 2019 CNS Executive Committee are committed to continued growth of our educational programs and member services and greatly value your feedback as we beginning planning for the years ahead. I encourage you to reach out to me and the officers with your ideas and suggestions. It is a great honor to continue serving the Congress of Neurological Surgeons, the CNS members, the CNS Executive Committee, volunteers, and staff in 2019!

— 2018 EXECUTIVE COMMITTEE —



Thank you for an exceptional year!

Officers

President

Ashwini D. Sharan, MD

President-Elect

Ganesh Rao, MD

Vice-President

James S. Harrop, MD

Secretary

Steven N. Kalkanis, MD

Treasurer

Praveen V. Mummaneni, MD

Past President

Alan M. Scarrow, MD, JD

Members-at-Large

Mohamad Bydon, MD

Daniel J. Hoh, MD

Brian V. Nahed, MD

Nader Pouratian, MD, PhD

Martina Stippler, MD

Jennifer A. Sweet, MD

Ex-Officio Members

Ashok Asthagiri, MD

Nicholas C. Bambakidis, MD

Garni Barkhoudarian, MD

Lola B. Chambless, MD

Alexander A. Khalessi, MD, MS

Brian L. Hoh, MD

Elad I. Levy, MD

Clemens M. Schirmer, MD, PhD

Historian

Christopher Wolfla, MD

CNS Executives

CEO

Regina Shupak

Legal Counsel

Gregory D. Willard, JD

CNS Executive Office

10 N. Martingale Road
Suite 190

Schaumburg, IL 60173

TEL: 847.240.2500

FAX: 847.240.0804

Toll-free: 877.517.1CNS

Email: info@cns.org

www.cns.org



CONGRESS OF NEUROLOGICAL SURGEONS

— ANNUAL REPORT 2018 —



Congress of
Neurological
Surgeons