



## CONGRESS OF NEUROLOGICAL SURGEONS



**STRENGTHENING THE  
NEUROSURGICAL COMMUNITY**



**Congress of  
Neurological  
Surgeons**



## CONTENTS

- xx 2022 President's Message
- xx Membership Committee
- xx Neurosurgery Publications
- xx Resident Committee
- xx DEI Committee
- xx 2022 CNS Annual Meeting
- xx Education Division
- xx CNS Leadership Institute
- xx Washington Committee
- xx Guidelines Committee
- xx Data Science & Quality Initiatives
- xx Strategic Partnerships
- xx CNS Foundation Update
- xx Corporate Development Update
- xx Financial Report
- xx 2023 President's Message
- xx Message from the CEO



Congress of  
Neurological  
Surgeons

## — 2022 PRESIDENT'S MESSAGE —



**Nicholas Bambakidis, MD**  
2022 President,  
Congress of Neurological Surgeons

It was my honor to serve as the President of the Congress of Neurological Surgeons in 2022. My term as President culminated in the Annual Meeting held in San Francisco held from October 8 to 12. The theme of the meeting, “Neurosurgery Connected,” celebrated not only the importance of connectivity in our field, but also the many ways our connections with our colleagues, industry partners, and essential neurosurgical organizations help to advance our individual practices and our specialty as a whole. This theme was highlighted not only by our keynote speakers, but throughout the program.

High-quality science was a highlight of the meeting, thanks to the original contributions from our members. In all, over 2,600 abstracts were submitted to the meeting, covering clinical and basic science, as well as operative techniques, data science, and medical education. We were fortunate to partner with the SNS on the Medical Education and

Training abstract session, as well as with the North American Skull Base Society to present a new symposium, “Frontiers in Skull Base Surgery.” And we were pleased to welcome back our colleagues from our international partner societies—the Japanese Congress of Neurological Surgeons (JCNS), the Neurological Society of India (NSI) and the Sociedade Brasileira de Neurocirurgia (SBN). For many of them, it was their first meeting in the U.S. since the start of the pandemic. Overall, it was an outstanding meeting and I am grateful to our Annual Meeting Chair, Ashok Asthagiri, Scientific Program Chair, Lola Chambless, Vice Chair, Garni Barkhoudarian and the entire scientific program committee for their contributions.

I also owe a great deal to my colleagues on the CNS Executive Committee. We have accomplished so much over the past year. The CNS completed a strategic plan that will help guide our actions over the next 5 years,

refocusing on our core strengths and striving to provide even greater value for our members across practice settings and career stages.

We successfully transitioned our world class publications to a new publisher, completed the Editor-in-Chief transition, with Douglas Kondziolka officially taking over in September, all while achieving our highest Impact Factor ratings for both *Neurosurgery* and *Operative Neurosurgery*.

Our Education Division brought back valuable in-person courses like Spine Complications, Tumor Complications and our Career Guide for New Attending Physicians and Fellows, and I was honored to again host the Skull-Base Fellows Course in Cleveland. Meanwhile, the education team continued to host vital virtual courses like SANS Written Board Review, Oral Board Review, and Data Science for Prognostication in Neurosurgery. We also launched a new Neurosurgical

# — 2022 PRESIDENT'S MESSAGE —

*continued*



Emergencies virtual course and a series of short format video lectures on key topics across neurosurgical subspecialties. Nexus, which now has over 541 cases from positioning to approach to closure, is one of our most popular products with more than 72,000 unique page views in 2022. And the SANS Committee completed the last two modules of the CNS SANS ABNS Primary Exam Review bundle. I cannot express enough gratitude to this committee for the amount of work that went into this project.

Lastly, the CNS Foundation saw continued growth this year and awarded its greatest number of grants and awards to date in 2022. In partnership with the CNS, the Foundation also brought the successful Pathway to Neurosurgery program back to the Annual Meeting, giving 24 local high school students from groups underrepresented in

neurosurgery an opportunity to connect with neurosurgeons and learn about neurosurgery as a career path. This groundbreaking program is instrumental in helping to diversify the neurosurgical candidate pool in the future.

The CNS has a very bright future under the leadership of Elad Levy as CNS President. The 2023 Annual Meeting in Washington D.C. is already shaping up to be an outstanding program. As I wrap up my tenure on the CNS Executive Committee, I am grateful for the passion and commitment of my colleagues on the CNS EC. It has been such an honor to work alongside these young leaders in our field and I have no doubt that under their watch, this organization will continue to grow and flourish. Thank you for giving me the opportunity to lead this organization and serve you all in 2022.

## — MEMBERSHIP COMMITTEE —



In 2022, the CNS Membership Committee, Resident Committee, Education Division and International Division collaborated on several initiatives to create deeper value for our members by developing new offerings available exclusively to CNS members, including:

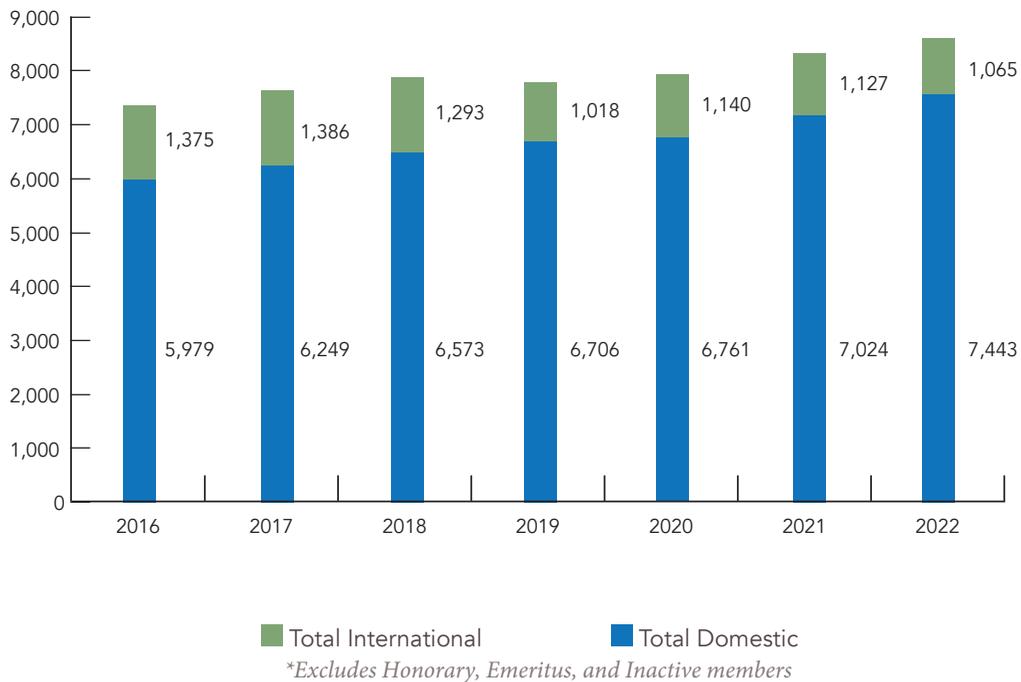
- Exclusive member discounts on legal contract review and negotiation services that provide guidance to empower our members during transitions in their careers.
- Exclusive access to select 2022 CNS Annual Meeting Session Recordings, including the the Presidential Address and all four General Scientific Sessions.
- Online Education Subscription—a resource only available to CNS Members which provides unlimited access to some of CNS's best educational resources, including webinars, SANS Indication, SANS Leadership, Podcast CME and the Neurosurgery Survival Guide App—more than \$7,500 worth of online education and more than 150 hours of CME for only \$19.99/monthly or \$119/annually!

At the same time, we have maintained our commitment to providing unparalleled service to our members. These efforts, in part, contributed to continued member growth across key CNS membership categories. With a record membership of 10,529 including 7,443 domestic members and an international membership of 1,065, the CNS has grown its domestic membership year-over-year for 12 consecutive years

# MEMBERSHIP

continued

## CNS MEMBER GROWTH



### CNS Membership Spotlight

*"Joining the CNS afforded me additional learning materials to advance my neurosurgical education as well as connected me to the "big names" in Neurosurgery."*

– Ripul R. Panchal, DO, FACOS, FACS

*Dr. Panchal is an Associate Professor at Texas Christian University School of Medicine and a consulting neurosurgeon in solo practice in North Dallas, Texas who feels privileged to practice the art of neurosurgery.*



— MEMBERSHIP —  
continued



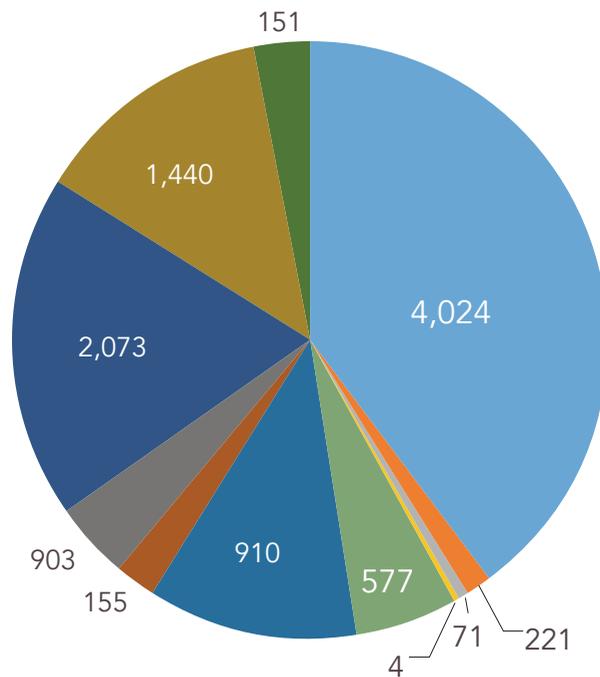
CNS Membership Spotlight

*“Membership provides access to leaders in the field, and educational platform that is up to date and resources to bring evidence-based, cutting-edge technology and techniques to patient care.”*

– Juan Silvestre Pascual, MD

*Dr. Pascual is a current functional brain mapping fellow under Dr. Hugues Duffau, and an incoming Endoscopic Skull-based and Neurooncology fellow at the University of Calgary.*

CNS 2022 MEMBERSHIP



- Active
- Honorary
- International Vista Resident
- Emeritus
- Affiliate
- Inactive
- Medical Student
- Transitional
- Associate
- International
- Resident

# MEMBERSHIP

continued

## MEMBERSHIP BENEFITS:

- Complimentary or discounted subscriptions to CNS portfolio of top-rated publications, including [Neurosurgery](#), [Operative Neurosurgery](#), and [Congress Quarterly](#), covering the latest advances in neurosurgical research and technology, practice management, socioeconomic developments, and more.
- Extensive educational resources, including our online [education catalog](#) of over 350 CME hours accessible at your convenience, anytime and anywhere, including [Case of the Month](#); [SANS Lifelong Learning](#); [Journal Club Podcasts](#); and [Nexus](#) with 550+ cases in all 27 subspecialties.
- Exclusive member rates at in-person events, like our expert-led [courses](#) and the [2023 CNS Annual Meeting](#)—join us in Washington, D.C., September 9-13, 2023 for unparalleled scientific discovery.
- [CNS Online Education Subscription](#), a resource opportunity that is only available to CNS Members which provides unlimited access to some of CNS's best educational resources, including webinars, SANS Indication, SANS Leadership, Podcast CME, and the Neurosurgery Survival Guide App. That's more than \$7,500 worth of online education and more than 150 hours of CME across all clinical and non-clinical areas of neurosurgical practice, for only \$14.99/monthly or \$119/annually!
- Exclusive member discounts on legal [contract review and negotiation](#) services through a new collaboration with Resolve that will provide professional guidance to empower our members during transitions in their careers—a **NEW** opportunity benefit added in 2022!
- Member-only discounts on [Open Access Article Processing Charge \(APC\)](#) in *Neurosurgery Practice* through Wolters Kluwer.
- The all new [CNS+ app](#) providing you information when you need it most, like CNS Guidelines, CNS Neurosurgery Survival Guide, and CNS Education, all in the palm of your hand.
- The convenient [Member Dashboard](#) which includes content curated especially for you through tailored recommendations of articles, courses, and guidelines, based on your selected subspecialties, as well as the ability to track your activities such as meeting participation, donations, and even CME tracking (for certain member types).
- [Volunteer](#) opportunities, where you can make an impact in neurosurgery through your expertise and skills by becoming a leader in the field, an opportunity only available to CNS members.
- Investment through dues support to defend and protect the ability of neurosurgeons to practice medicine freely through neurosurgery [advocacy and policy development](#), which CNS invests \$1 million annually towards advocating the best interest of our members and the neurosurgical community in Washington D.C..



Mohamad Bydon, MD

2022 Membership Committee Chair

# — NEUROSURGERY PUBLICATIONS —



In 2021 CNS shared the news of two major changes planned for **Neurosurgery Publications** in the year ahead: a publisher and Editor-in-Chief transition.<sup>1,2</sup> I am happy to provide an update to the membership on both as well as an overview of some additional highlights that occurred over the course of the year.

In January 2022, Wolters Kluwer became **Neurosurgery Publications'** official publisher. Some members may recall that prior to 2017, Wolters Kluwer was CNS's long-time publisher (previously under the name Lippincott Williams and Wilkins). In many ways this was a return rather than a completely new beginning. Nevertheless, a publisher transition is always a major undertaking requiring significant effort for all parties involved as well as the patience of the membership and public throughout the transitional period. We hope that your experience of the transition was smooth and we look forward to continuing to deliver the highest quality science and innovative content and features with our publishing partner Wolters Kluwer. In April we had our annual strategic planning retreat with our publisher and CNS leadership, discussing new dynamics within scientific publishing, and our own vision going forward.

In June 2022, both *Neurosurgery* and *Operative Neurosurgery* received their highest ever Impact Factors at 5.315 and 2.817 respectively. At an Impact Factor of 5.315, *Neurosurgery* has crossed the critical 5.0 threshold. I am sincerely thankful to the Editorial Board, Editorial Office staff, CNS members, authors, reviewers, and readers; this notable growth in both journals' Impact Factors would not have been possible without their commitment and support.

## Our Highest Impact Factor Ratings to Date:

*Neurosurgery*

**5.315**

*Operative  
Neurosurgery*

**2.817**

# — NEUROSURGERY PUBLICATIONS —

*continued*



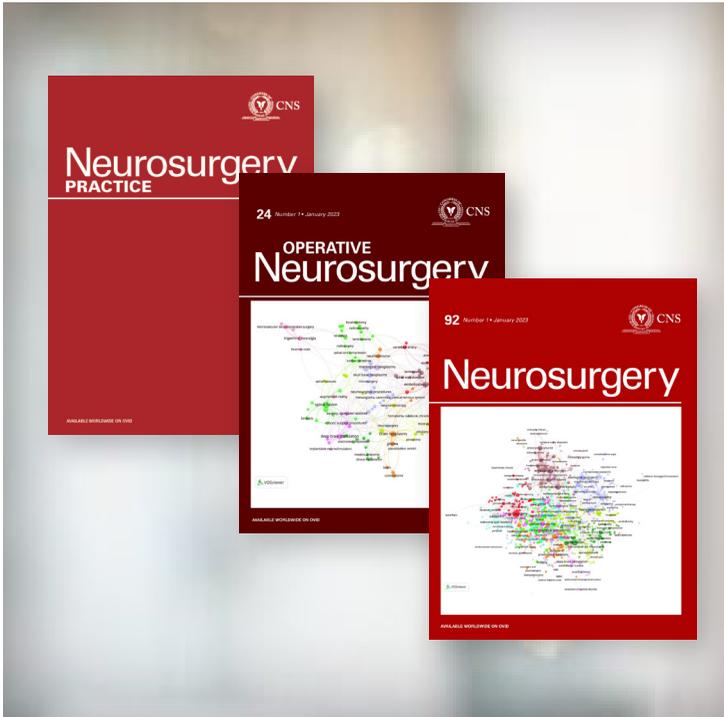
In September 2022, after a nine-month transitional period, I succeeded Dr. Nelson M. Oyesiku as Editor-in-Chief of **Neurosurgery Publications**. Nelson served in this role from June 2009 to August 2022 and left an incredible legacy that I plan to honor with the same spirit of excellence and innovation. For those interested I offered a detailed outline of my vision in the September Editor's Message<sup>3</sup> which can be accessed online at [neurosurgery-online.com](http://neurosurgery-online.com). Each issue since then has had an Editor's Message that has focused on different elements of scientific research. The next few months will focus on writing and authorship. Following that an array of topics by myself and our excellent team of seven Associate Editors will discuss different issues of interest. We hope you enjoy these!



*Neurosurgery Publications' Editor-in-Chief Emeritus, Dr. Nelson M. Oyesiku*

# — NEUROSURGERY PUBLICATIONS —

*continued*



Our Editorial Boards for peer-review include some new names as Assistant Editors, and in some Section Editor positions. We sought to advance the roles of those who in particular had done a great amount of work on behalf of the journals, both in the quality and timeliness of their reviews. Some articles are challenging to review of course, and it takes the input of several individuals from different perspectives, including biostatistics and methodology to insure that readers are seeing the best work. We are thankful for their contributions! Competition for acceptance is high and not all fine submissions can make it through. As we expanded the scope of our editorial board to include a commitment to topics that cross borders, we launched a new section on Global Neurosurgery which has been an immediate success.

Our dedicated staff—Brandon Fiedor (Director of Publications), Caitlyn Trautwein (Journal Editor, *Neurosurgery*); Rachel Lowery (Journal Editor, *Operative Neurosurgery*); Erica Bryant (Editorial Associate) and Jessica Striley (Journals Production Manager), work to ensure that each issue, from submission to online release and to print, flow professionally on behalf of authors and readers. In the true spirit of the Congress of Neurological Surgeons with a mission of education and innovation, we look forward to your comments and ideas!

In December 2022, CNS unveiled a new look for **Neurosurgery Publications** taking *Neurosurgery*'s reputation as “the red journal” as the foundation for a fresh, clean look. Our newest journal, *Neurosurgery Open* and the official open access journal of CNS, became *Neurosurgery Practice*. Like *Neurosurgery Open*, *Neurosurgery Practice* is online-only and fully Open Access. The journal will publish content representing the spectrum of neurosurgical practice with a clear and useful message important for patient care and will feature content from across the neurosurgical subspecialties including but not limited to vascular, spine, and tumor. I encourage the membership to consider *Neurosurgery Practice* as a destination for future research and to take advantage of the 20% CNS member discount on article processing charges required to publish in the journal, which are some of the lowest in the industry. Later this year, we plan to launch some new features within *Neurosurgery Practice* that will be unique in all of medicine. More to come on that!

## References

- 1 <https://www.cns.org/about/press-room-detail/cns-selects-wolters-kluwer-as-its-publisher>
- 2 <https://www.cns.org/about/press-room-detail/cns-announces-next-neurosurgery-publications-edito>
- 3 [https://journals.lww.com/neurosurgery/Fulltext/2022/09000/Humbled\\_to\\_Serve.1.aspx](https://journals.lww.com/neurosurgery/Fulltext/2022/09000/Humbled_to_Serve.1.aspx)



Douglas Kondziolka, MD, MSc,  
*Editor-in-Chief, Neurosurgery Publications*

## — RESIDENT COMMITTEE —

The CNS Resident Committee provides neurosurgery residents a unique opportunity to get involved in organized neurosurgery. During their tenure on the committee, Resident Committee members 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 development of the online fellowship directory and the Resident Research Forum.



Dr. Elad Levy presents the CNS Resident Award to Dr. Ravi Shankar Nunna

### THE RESIDENT COMMITTEE WAS INCREDIBLY BUSY IN 2022 FOCUSING ON FIVE NEW INITIATIVES:

- CNS Online Fellowship Directory** – The committee worked in partnership with fellowship programs to compile an online directory of available fellowships, complete with search features and a detailed list of standardized data elements.
- Resident Research Forum (CNS RRF)** – The CNS RRF is a resident-led, faculty-mentor supported research forum to promote research among residents and fellows enrolled in neurosurgery residency programs in the US. The primary goal of this alliance is to encourage resident-led multi-institution research initiatives. CNS resident members across all postgraduate years from all US neurosurgery programs will be invited to join the alliance.
- Neurosurgery Watch Classic** – The Resident Committee created easy to interpret, visually appealing abstracts that summarize the key findings of landmark neurosurgical papers that helped shape our practice. Although NeuroWatch is being discontinued in 2023, the visual abstracts in Neurosurgery Watch Classic will remain archived on CNS's website.
- Social Media Ambassadors** – members of the CNS Resident Committee served in this role for the 2022 CNS Annual Meeting, creating and sharing content from the resident perspective during the CNS Annual Meeting
- Diversity, Equity and Inclusion** – in collaboration with the CNS DEI Committee, committee members provided support during the CNS Pathway program at the 2022 CNS Annual meeting, as well as created a comprehensive document that details diversity within CNS Annual meeting sessions year to year, which will help to define and expand upon DEI through data metrics tracking in the future.

## — RESIDENT COMMITTEE —

*The CNS congratulates our 2021-22 Resident Committee and extends our sincere thanks for their work and contributions to CNS Standing Committees this year:*

Nancy Abu-Bonsrah  
Olusoji Afuwape  
Nitin Agarwal  
Oluwaseun Akinduro  
Miracle Anokwute  
Gustavo Anton  
Joseph Antonios  
Ahmed Awad  
Vin Shen Ban  
Evan Bander  
Roxana Beladi

Jeffrey Breton  
James Caruso  
Andrew Chan  
Julie Chan  
Kevin Chan  
Silky Chotai  
Aurora Cruz  
Lekhaj Daggubati  
Ehsan Dowlati  
Shahed Elhamdani  
Aladine Elsamadicy

Alexander Haddad  
Sabrina Heman-Ackah  
Rushikesh Joshi  
A. Basit Khan  
Sravanthi Koduri  
Edwin Kulubya  
Thomas Larrew  
Emal Lasha  
Daniel Lubelski  
Rachel Moor  
Zachary Pennington

Miner Ross  
Mayur Sharma  
Helen Shi  
Megan Still  
Michael Strong  
Danielle (Dani) Terrell  
Chad Tucheck  
Jorge Uriquia Galvez  
Arvin Wali  
Mohamed Zaazoue

### CNS Membership Spotlight

*Ayomide Kayode is a medical student at the Ladoke Akintola University of Technology in Ogbomosha, Nigeria. He joined the CNS in 2022 because he wanted to belong to an international community of neurosurgeons and build his capacity in leadership and work with other people from diverse communities.*

– Ayomide Kayode



**CNS Virtual Residency Fair** – The CNS Resident Committee also hosted the CNS Virtual Residency Fair for our third year. On September 7 and 8, 2022, 72 residency programs presented information on their respective programs to 270 interested medical student prospects, both figures representing growth from our 2021 program. With its tremendous popularity, the CNS plans to make this event an annual program moving forward, offering future neurosurgical residents a valuable, and economical way to learn more about training programs across the country.



Edjah K. Nduom, MD  
2022 Resident Committee Chair

## — DEI COMMITTEE —

The CNS DEI committee worked with several other standing committees throughout the year to ensure a diverse speaker list for courses, webinars, and CNS-sponsored content. Such diversity includes representation from different genders, ethnicities, training programs and practices, geographic locations, and career stages. Our goal is to ensure that we as an organization are a reflection of the diversity within our field, and continue to improve upon that. The members of the DEI Committee review all courses and provide feedback/recommendations to the planning groups on diversity of invited faculty.

Moreover, the CNS Annual Meeting hosted a co-sponsored course with CNS DEI and WINS, titled “The Changing Face of Neurosurgery: Navigating Workplace Culture.” This course featured a diverse faculty with different viewpoints to explore power dynamics, biases, and one’s own limitations, as well as strategies to enhance one’s voice and position in the workplace. This course had an amazing turnout and engagement. We are grateful to those CNS members who participated and shared their experiences and perspectives.



**Tiffany R. Hodges, MD**  
*CNS Foundation DEI committee chair*



**Edjah Nduom, MD**  
*Co-Chair, DEI Committee*

### Pathway to Neurosurgery 2022, Successful Outreach to Youth

2022 continued to be a productive and groundbreaking year for the CNS Diversity, Equity and Inclusion Committee as they built upon their focus of ensuring diversity and equity in CNS courses and offerings, as well as lowering barriers to early neurosurgical exposure, in partnership with the CNS Foundation via the CNS Pathway Program.



The next generation of neurosurgeons is promising, based on the Pathway to Neurosurgery event held at the 2022 CNS Annual Meeting in San Francisco. Launched in 2021 in Austin, Texas by the CNS and now led by the CNS Foundation, Pathway to Neurosurgery welcomes local high school students from backgrounds underrepresented in STEM fields, to the CNS Annual Meeting. A day long symposium designed exclusively for them that takes place near the General Sessions, they spend the day surrounded by neurosurgeons, and get an inside look into what a medical career, possibly even a career in neurosurgery, would look like.

On that day, 24 students from Oasis for Girls and San Francisco Achievers, dressed out in full surgical gowns and protective gear visited multiple stations with demonstrations and tools used daily in

## — DEI COMMITTEE —

*continued*



neurosurgery. Volunteer neurosurgeons partnered with each student through the stations, giving them feedback on how to hold surgical instruments and answering their questions.

"This is how I practice!" said an early career neurosurgeon to a wide-eyed high schooler trying not to grip the egg too tightly as she carefully drilled through the shell.

Frank Bova kept a crowd of student's interest as he described the particulars of the external ventricular drain shipped to San Francisco from the University of Florida just for the occasion.

"Everyone has become involved in making this a great event for the kids," said Maryam Rahman, MD, one of the spearheads of the original program.

Medtronic provided generous financial support for the day-long event and multiple volunteers; Stryker opened its mobile lab to the students; Integra LifeSciences also donated supplies. And many neurosurgeons volunteered their time.

Between station rotations, the students listened to speakers from a variety of backgrounds talk about their own pathways to becoming neurosurgeons. Dr. Edjah Nduom, a neurosurgeon at Emory University, spoke about the importance of several mentors in his life, including

Nelson Oyesiku, who advised Dr. Nduom in his successful application for a fellowship at the National Institutes of Health.

*"I am passionate about the Pathway to Neurosurgery program because I know how meaningful it is to see someone like me in a STEM field. I spent my young life being told repeatedly that I would never be a neurosurgeon. Neurosurgery must be a career option for them because we need more neurosurgeons that represent our broad spectrum of patients," states Dr. Tiffany Hodges, who serves as chair of the CNS Foundation's Committee for Diversity, Equity, and Inclusion.*

During lunch, volunteer neurosurgeons led roundtable discussions with the students and casually answered their questions. Laughter and conversation bubbled throughout the day. Not only were the students enjoying themselves, but volunteer neurosurgeons also said it was one of the highlights of the CNS Annual meeting.

Weeks later, the CNS Foundation received feedback from many of the guests.

*"I never even heard of neurosurgery before I came to the event," replied one student. "Now I'm seriously considering it for my future."*

**– Mission accomplished.**

The CNS Foundation will again host Pathway to Neurosurgery in Washington D.C. A call for volunteers will be announced in the *Congress Weekly* this spring and posted on the CNS Foundation website. ([foundation.cns.org](https://foundation.cns.org))

## — DEI COMMITTEE —

*continued*

**Donate today to Pathway to Neurosurgery and other fine programs supported by CNS Foundation donors!**

The CNS Foundation wishes to express gratitude to the following people and organizations for making the 2022 Pathway to Neurosurgery event possible:

- **Tiffany Hodges, MD, and Maryam Rahman, MD**, for their outstanding leadership.
- **Medtronic** for their generous financial support and thoughtful leadership.
- **Frank Bova** and the University of Florida.
- **Stryker**, for providing use of their mobile lab to the students the day of the symposium.
- **Integra LifeSciences**, for their donated supplies for stations.
- To the following **practitioners** for giving their time to speak at the event: Tene Cage, Kim Kicielinski, Kimberly Hoang, Brian Nahed, Edjah Nduom, and Theresa Williamson.
- Sincere appreciation to the many **volunteer neurosurgeons** who stopped by and spent time with our guest students. You inspired them with your kindness.



**Maryam Rahman, MD**  
Committee Member CNS Foundation DEI committee



**Courtney Johnson**  
Director, CNS Foundation

## — 2022 CNS ANNUAL MEETING —



# NEUROSURGERY CONNECTED

**2022 Congress of Neurological Surgeons Annual Meeting**

San Francisco, California, October 8-12, 2022

The 2022 CNS Annual Meeting gathered thousands of neurosurgeons and their team members across practice settings and career stages to share impactful research and scholarly presentations, discuss advances in neurosurgical technology and approaches, and connect with one another.

Our 2022 meeting theme, ***Neurosurgery Connected*** celebrated not only the importance of connectivity in our field, but also the many ways our connections with our colleagues, industry partners, and essential neurosurgical organizations help to advance our individual practices and our specialty as a whole.

## ANNUAL MEETING HIGHLIGHTS

Five additional abstract sessions gave authors more opportunities to present their work at the podium, including a new **Medical Education Training abstract session** on Tuesday, October 11.



International Neurotrauma Symposia – **“Neurotrauma Across the Lifespan and Around the World”** brought together experts in both pediatric and adult neurosurgery to illustrate the challenges they face and the best practices they endorse as they offer insights.



Our **Interactive Multimedia Research Presentation Sessions** featured four mini stages where short oral presentations of selected posters were presented.



New Joint Symposium **“Frontiers in Skull Base Surgery,”** on Saturday, October 8, in partnership with the North American Skull Base Society (NASBS).



New Symposia for neurosurgical trainees, **“Swimming with the Sharks”** offered insight in to succeeding in the Neurosurgery Match and Residency.

The 2023 **Opening Reception** held at San Francisco’s Oracle Park offered attendees an evening of food, drink and reconnecting with colleagues right on the field, as well as a chance to try their arm at pitching.



## ANNUAL MEETING BY THE NUMBERS

**2,688** medical registrants gathered in San Francisco, California to connect with colleagues and catch up on critical developments in the field.

**12,098** CME hours were claimed

**2,030** scientific abstracts were presented

- **295** Oral Presentation & Oral Presentations
- **430** Poster Presentation
- **1,305** Digital Posters

**31** Weekend Symposia presented on topics including 3D Surgical Neuroanatomy

**30** Luncheon Seminars, including “New Concepts in Intra-operative Guidance,” “The Changing Face of Neurosurgery: Navigating Workplace Culture,” and “Complex Skull Base Approaches.”

**5** Guidelines Sessions packed wall to wall covering essential Practice Guidelines across subspecialties: The Preoperative Spine, Spinal Cord Stimulation, Chiari Malformations, Progressive Glioblastoma, Pediatric Hydrocephalus

**2** Sold-out Dinner Seminars: “Know Your Worth: Negotiation, Compensation, and Reimbursement for the Neurosurgeon” and “Enabling Technologies in Spine Surgery: Fad or Future?”



## HONORED GUEST



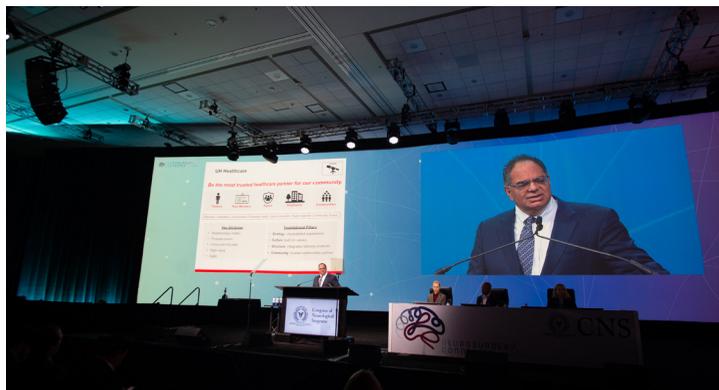
### Robert F. Spetzler, MD

*Emeritus President & CEO • Emeritus Professor and Chair, Department of Neurosurgery, Barrow Neurological Institute • Pioneer in cerebrovascular neurosurgery and skull base tumor*

Dr. Spetzler presented two outstanding talks during the General Scientific Session, hosted a meet and greet in the CNS Xperience Lounge, and led a Resident/ Honored Guest Luncheon, “My Journey in Neurosurgery.”

- **MONDAY, OCTOBER 10** - Honored Guest Presentation: “*What Cavernous Malformations Have Taught Us*”
- **TUESDAY OCTOBER 11** - Honored Guest Presentation: “*Management of Vascular Lesions of the Spinal Cord*”

### SPECIAL SPEAKERS



Warren R. Selman Lecture on Mentorship *“Walk this Way: The CNS and the Evolution of Neurosurgical Mentoring”*

*“HealthCare for Tomorrow, Today”* – Cliff Megerian

### FEATURED GUEST SPEAKERS



John Thompson History of Medicine Lecture – Vernice *“FlyGirl”* Armour



*“Space is Not the Final Frontier”* – William Shatner

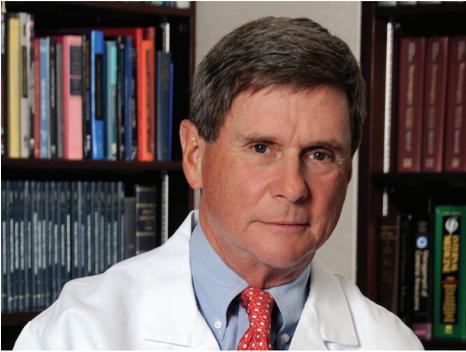


*“Taking Command: You Can Do That”* – Carl Lewis



*“Inspiring Leaders: Inspiring Teams”* – Dee Caffari

## CONGRATULATIONS!



### Distinguished Service Award Recipient

Ralph J. Dacey Jr., MD



### CNS Founder's Laurel Award Recipient

Warren R. Selman, MD



### CNS Educator of the Year Award Recipients

Brian V. Nahed, MD, MSc, FACS &  
Alan M. Scarrow, MD, JD

## Congratulations to the 2022 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.

Samuel Hassenbusch Young Neurosurgeon Award:

Michael S. Rallo

Julius Goodman Resident Award:

Rohaid Ali, MD

Galbraith Award:

Brandon T. Lucke-Wold, MD, PhD

Duke Samson Award:

Andrew T. Hale, MD, PhD

Natus Resident/Fellow Award for Neurocritical Care

Mark Maclean, MD, MSc

Natus Resident/Fellow Award for Traumatic Brain Injury

Ahmed Habib, MD, MSc

Ronald R. Tasker Young Investigator Award

Santiago R. Unda, MD

Stereotactic and Functional Neurosurgery Resident Clinical Award

Brandon D. Philbrick, MD

Stereotactic and Functional Neurosurgery Young Neurosurgeon Basic Science Award

Helen Qian

Stereotactic and Functional Resident Basic Science Award

Danika L. Paulo, MD

Stereotactic and Functional Neurosurgery Young Neurosurgeon Clinical Award

Vivek P. Buch, MD

Best Abstract in Medical Education and Training

Elana P. Kirsch

Section on Pediatric Neurosurgery Best Basic Science Abstract Award

Gabrielle Price

Section on Pediatric Neurosurgery Best Clinical Research Abstract Award

Shaye Busse

Best Peripheral Nerve Abstract

Saad Javeed, MD

Sherry Apple Resident Travel Scholarship

Sandra C. Yan, MD

American Brain Tumor Association Young Investigator Award

Michael Ivan, MD, MBS

Lunsford Leksell Radiosurgery Award

Andrea L. Klein

Journal of Neuro-Oncology Award

Elaina Wang, MD

Rosenblum-Mahaley Clinical Brain Tumor Research Award

Jeffrey I. Traylor, MD

National Brain Tumor Society Award

Jae Ho Han, MD

Integra Foundation Award

John P. Andrews, MD

Brainlab Neurosurgery Award

Pablo A. Valdes, MD

Mizuho Minimally Invasive Brain Tumor Surgery Award

Doo-Sik Kong

CNS Best Data Science Award

Alexander Cheung

Synaptive Preuss Award

Joerg Christian Tonn

AANS/CNS Joint Section Tumor Neuro-Oncology Trainee Award

Diogo P. Garcia, MD

James Rutka Pediatric Brain Tumor Award

Evan D. Bander, MD

KLS Martin Tumor Award

Danielle F. Miyagishima

## NEUROSURGERY PAPER OF THE YEAR AWARDS

For the past six years, the CNS and **Neurosurgery Publications** have honored the original papers that most significantly contributed to the field with the *Neurosurgery Paper of the Year Awards*



Dr. Ellen Air presents the *Neurosurgery Paper of the Year Award* to Dr. Andrew S. Little of the Barrow Neurological Institute.

## Top Paper of the Year

The Top Paper of the Year was awarded to *“Postoperative Oral Antibiotics and Sinonasal Outcomes Following Endoscopic Transsphenoidal Surgery for Pituitary Tumors Study: A Multicenter, Prospective, Randomized, Double-Blinded, Placebo-Controlled Study”*

Andrew S. Little, Varun R. Kshetry, Marc R. Rosen, Ryan M. Rehl, Timothy W. Haegen, Mindy R. Rabinowitz, Gurston G. Nyquist, Pablo F. Recinos, Raj Sindwani, Troy D. Woodard, Christopher J. Farrell, Griffin D. Santarelli, John Milligan, and James J. Evans.

## NEUROSURGERY PAPER OF THE YEAR AWARDS *continued*

### *Paper of the Year: Cerebrovascular*

#### **"Natural History of Spinal Cord Cavernous Malformations: A Multicenter Cohort Study"**

Jian Ren, Nan Jiang, Lisong Bian, Adam A. Dmytriw, Gao Zeng, Chuan He, Liyong Sun, Xiaoyu Li, Yongjie Ma, Jiaying Yu, Guilin Li, Ming Ye, Peng Hu, Jingwei Li, Fan Yang, Qianwen Li, Feng Ling, Hongqi Zhang, and Tao Hong.

### *Paper of the Year: Neurotrauma and Critical Care*

#### **"The Impact of Age and Severity on Dementia After Traumatic Brain Injury: A Comparison Study"**

Brittany M. Stopa, Zabreen Tahir, Elisabetta Mezzalana, Alessandro Boaro, Ayaz Khawaja, Rachel Grashow, Ross D. Zafonte, Timothy R. Smith, William B. Gormley, and Saef Izzy.

### *Paper of the Year: Pain*

#### **"Reducing Superfluous Opioid Prescribing Practices After Brain Surgery: It Is Time to Talk About Drugs"**

Karam Asmaro, Hassan A. Fadel, Sameah A. Haider, Jacob Pawloski, Edwin Telemi, Tarek R. Mansour, Ankush Chandra, Michael Bazydlo, Adam M. Robin, Ian Y. Lee, Ellen L. Air, Jack P. Rock, Steven N. Kalkanis, and Jason M. Schwalb.

### *Paper of the Year: Pediatrics*

#### **"Real-World Preliminary Experience With Responsive Neurostimulation in Pediatric Epilepsy: A Multicenter Retrospective Observational Study"**

Yasunori Nagahama, Thomas M. Zervos, Kristina K. Murata, Lynette Holman, Torin Karsonovich, Jonathon J. Parker, Jia-Shu Chen, H. Westley Phillips, Marytery Fajardo, Hiroki Nariai, Shaun A. Hussain, Brenda E. Porter, Gerald A. Grant, John Ragheb, Shelly Wang, Brent R. O'Neill, Allyson L. Alexander, Robert J. Bollo, and Aria Fallah.

### *Paper of the Year: Peripheral Nerve*

#### **"Morbidity and Function Loss After Resection of Malignant Peripheral Nerve Sheath Tumors"**

Enrico Martin, Courtney Pendleton, Cornelis Verhoef, Robert J. Spinner, J. Henk Coert, and the MONACO collaborators.

### *Paper of the Year: Socioeconomics, Health Policy, and Law*

#### **"The Legal and Socioeconomic Considerations in Spine Telemedicine"**

Roberto J. Perez-Roman, Delano R. Trenchfield, Nayda I. Perez-Roman, and Michael Y. Wang.

### *Paper of the Year: Spine*

#### **"Are Guidelines Important? Results of a Prospective Quality Improvement Lumbar Fusion Project"**

James Harrop, Alexandra Emes, Ameet Chitale, Chengyuan Wu, Fadi Al Saiegh, Geoffrey Stricsek, Glenn A. Gonzalez, Jack Jallo, Josh Heller, Kevin Hines, Lucas Philipp, Sara Thalheimer, Srinivas K. Prasad, Thiago S. Montenegro, Umma Fatema, and Ashwini Sharan.

### *Paper of the Year: Stereotactic and Functional*

#### **"Long-Term Results of Deep Brain Stimulation for Treatment-Resistant Depression: Outcome Analysis and Correlation With Lead Position and Electrical Parameters"**

Juan Ángel Aibar-Durán, Rodrigo Rodríguez Rodríguez, Francisco Javier de Diego Adeliño, María J. Portella, María Jesús Álvarez-Holzappel, Ana Martín Blanco, Dolors Puigdemont Campos, and Joan Molet Teixidó.

### *Paper of the Year: Tumor*

#### **"Machine Learning-Based Prediction of Early Recurrence in Glioblastoma Patients: A Glance Towards Precision Medicine"**

Giuseppe Maria Della Pepa, Valerio Maria Caccavella, Grazia Menna, Tamara Ius, Anna Maria Auricchio, Giovanni Sabatino, Giuseppe La Rocca, Silvia Chiesa, Simona Gaudino, Enrico Marchese, and Alessandro Olivi.

## SANS Challenge Winners

Congratulations to these Residents, who beat out 12 teams from around the country to bring SANS Challenge glory to their programs.



### 1st Place

UNIVERSITY OF CALIFORNIA SAN DIEGO

Lauren Stone, Brian Hirshman



### 2nd Place

UNIVERSITY OF CALIFORNIA DAVIS HEALTH

Matthew Kercher, Dylan Goodrich



### 3rd Place

PENN STATE

Frances Jareczek, Varun Padmanaban



## Innovator of the Year Award

**Brandon Sherrod**  
*Motorized Robotic Closed Cervical Traction*

Congratulations also to UCSF for submitting the highest number of accepted abstracts for the 2022 CNS Annual Meeting – 80 accepted abstracts!

# — CNS EXPERIENCE LOUNGE HIGHLIGHTS —



**SPACE TO RELAX  
AND CONNECT WITH  
COLLEAGUES AND  
PEERS**



## **BOOK SIGNING:**

- *Dr. Elad Levy – Video Atlas of Acute Ischemic Stroke Intervention*



# — CNS EXPERIENCE LOUNGE —

*continued*



## MEET AND GREET

- *Dr. William Spetzler, CNS Honored Guest*



## WELLNESS INITIATIVES

- *Voices in Neurosurgery*
  - *Personal stories shared about "Finding Meaning in Neurosurgery"*



- *Wellness Roundtable*
  - *Fruit smoothies were served*
  - *CNS surgery caps were given away*



## INNOVATOR OF THE YEAR FINALIST PRESENTATIONS

- *Towards Global Availability of Low-cost, Hermetically Precise, Patient-specific Cranial Implants: Creation of the CranialRebuild Freeware Application*  
– Jonathan Forbes, MD
- *Untethered Neurosurgical Microrobots for Targeted Local Drug Delivery*  
– Kimberly Hoang, MD
- *Motorized Robotic Closed Cervical Traction*  
– Brandon Sherrod, MD



## LIVE SURGERY PRESENTATIONS

- *Stryker and Q'Apel: Flow Diverter Embolization: Surpass Evolve™ with Armadillo Catheter Access*
- *MicroVention: Treatment of a Right Middle Cerebral Artery Aneurysm with the WEB Embolization System*

## — EDUCATION DIVISION —



Under the leadership of Chair Nader Pouratian, as well as Co-Vice Chairs Tiffany Hodges and Akash Patel, the CNS Education Division continued to expand our catalog in 2022 with a focus on developing targeted, relevant and timely educational content for neurosurgeons across all career stages and practice settings.

We returned to in-person events in full force this year, hosting four successful live courses, while continuing to deliver essential content to our members at home through four virtual courses and 62 new on-demand offerings, allowing us to once again reach record numbers of attendees. All of this was accomplished through the efforts of more than 100 volunteer committee and work group members and over 200 faculty members.

## — LIVE COURSES —

### *2022 Tumor Complications Course*

**January 15-16, 2022 • Fort Lauderdale, Florida**

Originally introduced in 2019, the CNS Tumor Complications Course made a comeback February 15-16, 2022, after a COVID hiatus. Providing a peer review forum for the discussion of complications related to brain tumor surgery, this intimate two-day course covered clinical decisions, operative techniques, and equipment-related issues. A team of subspecialty experts, led by Drs. Constantinos G. Hadjipanayis and Ganesh Rao, passed along lessons learned and pointed out safety concerns to help attendees improve the surgical management of patients with brain tumors. Participants also discussed the impact of complications on patients and surgeon's well-being.

Total CME Claimed: (Hours)

**65**

### *2022 Spine Complications Course*

**February 4 - 6, 2022 • Park City, Utah**

In February, the CNS hosted the annual Spine Complications Course in Park City, Utah. One of CNS's longest standing and most popular courses, the Spine Complications Course uses an interactive case-based format to help attendees recognize factors that lead to complications and poor outcomes when treating spine disorders and discuss new and different strategies for how to best resolve spine surgery complications should they arise. Led by course directors, Drs. Daniel J. Hoh, Adam S. Kanter and Praveen V. Mummaneni, this program invited participants to present a complicated case of their own for discussion with peers and expert faculty on management and preventative strategies.

Total CME Claimed: (Hours)

**96**

### *2022 Skull Base Course*

**September 1-2, 2022 • Cleveland, Ohio**

This fall the CNS once again gathered early career neurosurgeons in Cleveland OH for the Skull-Base Fellows Course, led by CNS President Nicholas Bambakidis and a team of eighteen expert faculty. This rigorous two-day course combined lectures, case-based discussions, and cadaveric dissections to cover the basic surgical approaches and anatomy required of every skull base neurosurgeon.

Total CME Claimed: (Hours)

**28**

### *The Basis of a Rewarding Neurosurgical Career: A Career Guide for New Attending Physicians and Fellows*

**March 18-19, 2022 • Las Vegas, Nevada**

After holding this course virtually in 2021, we were eager to gather with early-career surgeons in person this March. Led by Drs. Ashok Asthagiri and Mark Hadley, along with nine other neurosurgical faculty, the "Career Guide" course is part of a comprehensive curriculum designed by the CNS to help guide participants through the transition period from senior residency to mid-career neurosurgeon. Topics included strategies for establishing a career focus, the value of mentorship and maintaining a peer network, techniques to become a productive and effective contributor in your new practice/institution, and processes to establish effective physician-patient relationships that translate to an improvement in patient outcomes, patient safety, and patient satisfaction. This year's course also included afternoon sessions with a Tumor focus, covering topics like tumor-specific grant development and starting a clinical trial.

Total CME Claimed: (Hours)

**72**

## — VIRTUAL COURSES —

### *SANS Written Board Review Course*

In January 2022, the CNS once again hosted the SANS Written Board Course online, and once again a record number of attendees took advantage of this opportunity to study together for the ABNS Primary Exam. The one-day intensive review, led by Drs. Khoi Than and Russell Lonser, provided summative didactic sessions 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. Each lecture incorporated live SANS questions with interactive polling to help learners test their knowledge, and identify areas for further study.

### *Oral Boards Review Course*

In 2022 the CNS has once again held its Oral Board Review Courses in a virtual format to align with the format of the ABSN Exam. Virtual courses were held in February and September. These highly interactive courses were designed to prepare surgeons for the case-based nature of the exam with multiple learning formats, including didactic, faculty vs. faculty quiz demonstrations, case presentations, small-group discussions and one-on-one sessions. This year's courses were led by Drs. Akash Patel and Robert Spinner, along with 21 other expert faculty. In addition to the virtual courses, we have continued to host post-course Hot Seat Monday sessions for course attendees with around 30-40 people participating each week. For those registered for the fall virtual course, we offered optional one-on-one sessions with course faculty, just prior to the CNS Annual Meeting in San Francisco.

Total CME Claimed: (Hours)

**584**

### *Neurosurgical Emergencies Course*

In March of 2022, the CNS launched a new virtual course designed for neurosurgeons, allied health staff and residents who work in neurosurgical emergency situations. This three-day virtual course was led by Drs. Martina Stippler and David Okonkwo, and covered topics including aneurysm rupture, stroke care, anticoagulation reversal, spine stabilization, TBI operative care and hyper intense conversations. The course featured multiple learning formats including didactic, panel discussions, case presentations, small-group discussions, and live polling.

### *Data Science for Prognostication in Neurosurgery*

In June 2022, the CNS once again held its Data Science Virtual Course designed for neurosurgeons and residents who will use data science in their research or hospital administrative duties. Led by Drs. Mohamad Bydon, Matthew Pease, Daniel Donoho and Daniel Sexton, the course provided an overview of various types of data science techniques, and covered organizing a data science project to build a prognostic model from data sets of neurosurgical patients, utilizing cutting edge methods in data science to analyze complex data structures not optimally modelled by standard statistical techniques, and identifying how interpretable artificial intelligence (AI) allows clinicians to understand how data science models prognosticate and assign importance to various model features. The course was presented using didactic and panel discussion.

Total CME Claimed: (Hours)

**435**

Total CME Claimed: (Hours)

**44**

## — ONLINE LEARNING —

This year we offered 181 activities in the online catalog, which included podcasts, special series, online courses, and webinars. A total of 1096.5 AMA PRA Category 1 credits have been claimed to date.



### Webinar Series

- The CNS hosted a new SANS Live Written Board Review webinar series in February. This two-week live series offered eight webinars, covering each subspecialty in neurosurgery. Webinars were provided complimentary to attendees and were non-CME. Moderated by Laura Snyder. 15 faculty participated. 607 attendees tuned in overall.
- The Oral Board Review Webinar Series was pre-recorded in July and released in August. The series featured a diverse panel of 25 presenters. Webinars are available through the online catalog with 1.0-1.5 CME hours available to claim per session.
- The CNS and NANS partnered to produce a special four-part joint series consisting of podcasts and webinars on approaches to pain management.
  - **Parts 1** included three podcasts and one live webinar covering topics on Back Pain and Moderation.
  - **Part 2** included three podcasts and one live webinar on Nonsurgical Management of Pain
  - **Part 3** included three podcasts and one pre-recorded webinar on Multidisciplinary Approaches to Cancer Pain and Facial Pain
  - **Part 4** included two standalone pre-recorded webinars: Intrathecal Drug Delivery and Building a Multidisciplinary Spine, Pain, and Neuromodulation Practice
  - **All activities** are available for purchase in the online catalog, ranging from 1.0-1.5 CME.
- The Billing & Coding series was updated this year. Three new webinars were recorded for this series featuring nine faculty. These on demand webinars aim to help neurosurgeons avoid insurance underpayment or delayed payment due to improper coding and billing.
  - Available for **purchase** in the online catalog. 1.0 CME each.
- In November, the CNS released a new Trauma Bundle in November, offering six online activities for a total of 16 CME. Available for purchase as a subscription on the Online Education webpage.
- In January, the CNS hosted three joint international webinars with the Sociedade Brasileira de Neurocirurgia (SBN), Neurosurgical Society of India (NSI), and the Japanese Congress of Neurological Surgeons (JCNS). All sessions were held live and offered complimentary.

## — ONLINE LEARNING —

*continued*

### Podcasts

- In 2022, the CNS recorded 12 monthly Journal Club Podcasts. These 30-minute podcasts are complimentary to all CNS members and had a combined total of 15,073 plays. Three new resident volunteers joined the committee this year. Thank you to our volunteer committee, led by co-chairs Kimberly Hoang and Rafael Vega for their efforts on this series.
- The Online Education Committee released two new podcasts under the Education umbrella.
  - Controversies in Neurosurgery, led by co-chairs Seth Oliveria and Rushna Ali featured seven episodes and had 8,575 total plays this year.
  - Optimizing Neurosurgical Practice covers covering topics such as mentorship, residency programs and connecting with new generational attitudes. We offered a single episode in November 2022 on Bridging Generational Gaps in Neurosurgery, featuring Nicholas Bambakidis, which had 659 plays. Co-chairs: Brian Gantwerker, Amir Vokshoor, Joslyn Woodard, and Tiffany Hodges

These two podcasts will alternate monthly. They are both complimentary and are non-CME.

- The CNS and NCS (Neurocritical Care Society) partnered to record two standalone joint podcasts this year. Complication Management in TBI featured guest faculty Mehrnaz Pajoumand discussing topics from blood thinners in TBI to management of cerebral edema. Management of Intracranial Pressure featured guest faculty Ebonye Green discussing bedside approaches to the management of elevated ICP. Both sessions were moderated by Ryan Kitagawa and are available complimentary on the CNS Podcast page. <https://www.cns.org/cns-podcasts>
- As part of the Joint CNS-NANS Series, nine podcasts were produced discussing various approaches to pain management. These complimentary, non-CME podcasts have received a combined total of 7,803 plays.

### Case of the Month

To date, a total of 1,233 learners have participated in Case of the Month (COTM) by completing the case survey on CNS.org. This year we continued hosting Instagram Live sessions and added a moderator for a more interactive and engaging experience. The Case of the Month format will be changing in 2023, moving toward a social media platform only.

### YouTube

In 2022, we published 79 videos to the CNS YouTube Channel, added 828 new subscribers to the channel, and increased channel views by 61%. The newly revamped channel includes the following content:

- **Neurosurgery On the Go** – Features webinar clips from CNS webinars as a teaser to the full product available on the CNS Website. (41 videos)
- **CNS Neurosurgery 100** – Features 10-15 lectures on key topics across Neurosurgery subspecialties. (23 videos)
- **CNS Podcasts** – Cross posted audio from each CNS Podcast that is released.
- **Journal Highlights** – Videos submitted by accepted authors with a manuscript published in *Neurosurgery* (3 videos).
- **CNS Promotional Videos** – Course and Meeting promotional videos about upcoming CNS events and initiatives.

### Watch

This year we published fourteen total Neurosurgery Watch and Watch Classic articles, highlighting studies pertinent to neurosurgical practice. The Neurosurgery Watch initiative is being concluded at the end of 2022. The CNS extends our sincere gratitude to the many volunteer neurosurgeons who have contributed to this resource over the years.

### Online Education Subscription

This member-only benefit offers unlimited access to more than \$7,500 worth of online education and 150 hours of CME across all clinical and non-clinical areas of neurosurgical practice. \$14.99 per month | \$119 per year (165 subscriptions purchased)

### CNS+ App

CNS+ continues to grow and be your one stop mobile reference for Neurosurgery. This past year the Online Education Subscription, SANS, Flashcards and NeuroLingo were all added to the app. The Neurosurgery Survival Guide app (NSG) can be added on to CNS+ for \$19.99. NSG was further developed this year adding over 100 new items including coding and billing data. More to come in 2023!

## — ONLINE LEARNING —

*continued*

## — SANS —

In 2021, the CNS expanded our SANS catalog to include the CNS SANS ABNS Primary Board Exam Review I & II exams, using question stems from the ABNS primary exam question bank. In 2022, we completed this four-exam bundle launching the CNS SANS ABNS Primary Exam Review III in June and IV in November. In addition to making these new exams available individually to Residency programs for purposes of primary exam preparation, we also released a bundle of all four CNS SANS ABNS Primary Board Exams.

This new launch brings CNS's comprehensive catalog to 17 targeted exams and tools, uniquely suited to meet the needs of modern neurosurgical practice and training. This incredible accomplishment has been possible only through the thousands upon thousands of hours our dedicated volunteers have committed to writing, vetting and reviewing SANS questions. Through their efforts SANS continues to be a trusted resource for neurosurgeons to assess and expand their surgical knowledge, as well as prepare for board certification.

### SANS Live

In 2022, we also worked to expand access to SANS content by creating a new SANS Live Written Board Webinar structure and content to offer interactive quizzing with SANS questions for webinar series. Lastly, in an effort to recognize our question

writers for their time and contributions, we developed question-writing CME opportunity for committee members.



### SANS by the numbers:

17

SANS  
Exams

80

Residency program licensed  
CNS SANS ABNS content for  
exam preparation

1,493

AMA PRA Category 1 Credits  
claimed

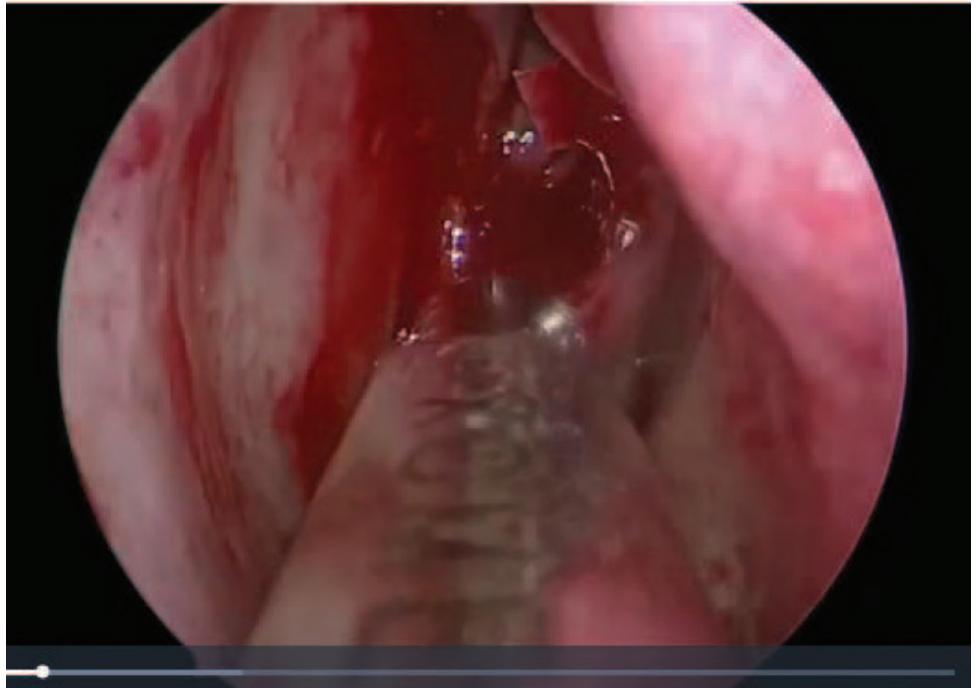
11.5

AMA PRA Category 1 Credits  
Claimed by SANS Editors

# — NEXUS —

Nexus is CNS’s case-based repository of neurosurgical operative techniques & approaches, designed to better prepare trainees for the operating room. Since its 2021 relaunch, Nexus has continued to grow, both in the number of cases and utilization. The platform now features a total of 562 cases, 88 of which were new or updated in 2022.

More than 360 authors have contributed cases to the Nexus, most 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. In 2022, we introduced a new login and user-friendly template that makes it easy for anyone with a CNS account to submit to be a Nexus author and begin submitting cases. We also offered monthly Nexus social media posts to spotlight Nexus cases. The November tweet was one of CNS’s top 10 best !



## STAY CONNECTED TO CNS EDUCATION



### Case of the Month on Instagram Live

Each month CNS Case of the Month authors have the opportunity to present their case on Instagram Live

Follow [@CNS\\_Update](#) on Instagram



### Nexus Videos

Every month a new case is featured on social media with a video that is 1 minute or less

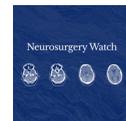
Follow [@CNS\\_Update](#) on Twitter



### SANS Twitter Questions

A SANS question is posted to Twitter very week as an interactive poll

Follow [@CNS\\_Update](#) on Facebook



### Neurosurgery Watch

Engaging infographics posted to social media monthly

— EDUCATION DIVISION —  
*continued*

EDUCATION DIVISION LEADERSHIP



Nader Pouratian, MD, PhD  
*Chair*



Tiffany Hodges, MD  
*Co-Vice Chair and Chair, Online  
Education*



Akash Patel, MD  
*Co-Vice Chair*

ONLINE EDUCATION LEADERSHIP



Tiffany Hodges, MD  
*Chair*



Edjah Nduom, MD  
*Chair*

SANS COMMITTEE LEADERSHIP



Laura Snyder, MD  
*Co-Chair*



Khoi Than, MD  
*Co-Chair*



Akash Patel, MD  
*Advisor*

NEXUS COMMITTEE LEADERSHIP



Khoi Than, MD  
*Chair*



Edjah Nduom, MD  
*Vice Chair*

## — CNS LEADERSHIP INSTITUTE —

Since 2015, the CNS has dedicated thousands of hours to the development of future neurosurgical leaders through the CNS Leadership Institute. Originally launched as the CNS Leadership in Health care Course, the Leadership Institute has been expanded and refined over the years into a comprehensive neurosurgical leadership training curriculum designed to empower neurosurgeons with the skills and resources they need to be leaders at each phase of their career. Alumni of the CNS Leadership Institute have gone on to lead important initiatives in their institutions as well as in organized surgery. We can count among our alumni nine Residency Program Directors, 15 current CNS Executive Committee members, and more than 100 members of standing committees, joint committees and editorial boards critical to our specialty.



In 2022, the CNS Leadership Institute kicked off its yearlong program with two intensive weekend training courses in Chicago—the CNS Leadership in Health care Course, designed for surgeons within 5 years of completing their Residency, as well as the Vanguard CNS Leadership in Health care Course for those more tenured in their practice who are already in or are moving into formal leadership roles within their home institution. Each course was led by neurosurgeon leaders—Drs. Alan Scarrow and David Langer for the junior attending course, and Drs. Joseph Cheng, Marjorie Wang and Fady Charbel for the Vanguard course—as well as a group of organizational communications and health care finance experts affiliated with the University of Illinois at Chicago, Henry Ford Health and Medtronic.

### 2022 CNS Leadership Institute by the Numbers

- 2** Live Courses in May 2022
- 28** Participants from 19 different states
- 6** webinars presented by Harvard T.H. Chan School of Public Health

# 146

Neurosurgeons have completed one or more courses, including 15 current CNS Executive Committee Members

# — CNS LEADERSHIP INSTITUTE —

*continued*



The curriculum's unique mix of health care finance and business acumen along with soft skills like communication and building influence helps surgeons understand diverse perspectives, communicate across all levels of the organization, and more effectively lead teams and advance their projects. Both the original course and the 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.

These workshops introduced analytical tools and facilitated small-group discussion of real-world decision scenarios faced by administrative and neurosurgical leaders. This year's program also included a joint networking dinner where participants and faculty from both courses could connect and discuss their leadership challenges, as well as a shared negotiations session featuring a panel of all neurosurgeon faculty members.

The learning from our weekend course was prefaced by a series of pre-requisite webinars and a leadership strengths assessment, and then extended through participants' completion of an individual leadership project, which they pursued within their home institutions. Participants applied the concepts learned from the weekend courses to these individual projects, gaining insight from faculty and peer mentors to overcome obstacles while working toward their personal and organizational goals.

New in 2022, Leadership Institute fellows continued their learning through a series of four webinars presented by organizational leadership experts at the Harvard T.H. Chan School of Public Health. This new webinar series covered decision making, crisis leadership, strategic planning and delivering difficult feedback, providing new insights and continued practice of the core concepts as participants proceeded with their individual projects.

The program concluded in October with a final report-out session during the CNS Annual Meeting where selected participants shared their progress and challenges around the leadership projects they were pursuing and gained feedback from their colleagues. The end result is a dynamic and adaptive learning experience unlike anything available in our specialty, which has been well received by participants and their mentors back home.

In today's health care environment, the role of a modern neurosurgeon includes health care leadership. Leadership, change management and negotiation skills are as critical to the role as surgical training and knowledge. 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 Institute 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.



**Brian V. Nahed, MD**  
*Co-Chair*



**Ellen Air, MD**  
*Co-Chair*



**Anand Veeravagu, MD**  
*Vice Chair*

## — WASHINGTON REPORT —



### CNS Leads the Way Advocating for Neurosurgeons in Washington

Through advocacy, policy development and public relations, the Washington Committee and Washington Office have played a fundamental role in advancing neurosurgery's [key health care initiatives](#). Throughout 2022, the CNS frequently interacted with members of Congress and worked with government agencies — including the Centers for Medicare & Medicaid Services (CMS) and the Food and Drug Administration (FDA) — and other health care stakeholders, such as third-party payers and state and national medical associations. As a result, organized neurosurgery made progress on legislative and regulatory issues important to neurosurgeons, their patients and the specialty.



AANS/CNS Washington  
Committee for  
Neurological Surgery

## — WASHINGTON REPORT —

*continued*

### **Streamlining Prior Authorization — Reform is in our Sight**

For the past five years, the CNS has been tireless in its efforts to reform prior authorization. Neurosurgery-backed legislation — the *Improving Seniors' Timely Access to Care Act* ([S. 3018/H.R. 3173](#)). Championed by Sens. **Roger Marshall**, MD, (R-Kan.), **Kyrsten Sinema** (D-Ariz.), **John Thune** (R-S.Dak.) and **Sherrod Brown** (D-Ohio) in the Senate, and Reps. **Suzan DelBene** (D-Wash.), **Mike Kelly** (R-Pa.), **Ami Bera**, MD, (D-Calif.) and **Larry Bucshon**, MD, (R-Ind.) in the House, this bill would reform the use of prior authorization in Medicare Advantage through a streamlined and standardized process that focuses on increased transparency and accountability. This sustained advocacy paid off as prior authorization reform took center stage in 2022. On Sept. 14, 2022, the legislation unanimously passed the U.S. House of Representatives by voice vote. It also garnered overwhelming bipartisan support in the U.S. Senate, finishing the year with 380 combined bipartisan co-sponsors and paving the way for adoption in the 118th Congress.

In addition to this progress on the legislative front, CMS released two proposed regulations. The [first](#) incorporates various improvements to prior authorization in the Medicare Advantage program, Medicaid managed care, Children's Health Insurance Program (CHIP) and federal Marketplace plans. CMS published a second [proposal](#) to address additional issues related to prior authorization in the Medicare Advantage program. Taken together, the two proposals align with the legislation by:

- Advancing interoperability and improving prior authorization by requiring health plans to adopt electronic prior authorization;
- Requiring plans to make prior authorization decisions within 72 hours for urgent requests and seven calendar days for others;
- Ensuring that prior authorization approvals remain valid for a patient's entire course of treatment;
- Mandating that Medicare Advantage plans follow traditional Medicare's national and local coverage policies and stipulating that professionals with relevant experience must review coverage determinations;
- Supporting efforts, such as gold carding, to waive or modify prior authorization requirements based on provider performance; and
- Compelling health plans to publicly report the use of prior authorization, including information on delays and denials.



As a founding member and leader of the [Regulatory Relief Coalition](#), the CNS will continue to work with policymakers to finalize legislative and regulatory proposals to improve prior authorization.



### **Championing Fair Reimbursement for Neurosurgeons — Steep Cuts Prevented**

Again facing steep Medicare payment cuts in 2023, the Congress of Neurological Surgeons (CNS) and the American Association of Neurological Surgeons (AANS) continued their participation and leadership in the [Surgical Care Coalition](#) (SCC). Through a comprehensive campaign encompassing research, media, digital and creative content, the CNS amplified our message to “stop the full cut” and make this issue prominent among lawmakers. The coalition took its message directly to Capitol Hill through grassroots advocacy and education briefings, culminating with the passage of the *Consolidated Appropriations Act, 2023* ([P.L. 117–328](#)). While the legislation did not stop the full cut, it did mitigate the Medicare physician payment cuts, and neurosurgeons now face an overall payment reduction of less than 2% rather than the 8.5% planned cut.



# — WASHINGTON REPORT —

*continued*



CNS president-elect **Alexander A. Khalessi, MD**, is interviewed for the Surgical Care Coalition in the Washington Office.



**Kristopher T. Kimmell, MD**, leads a Congressional staff briefing on the need for legislation to prevent steep Medicare cuts.



**Jason M. Schwalb, MD**, goes to Capitol Hill to advocate for legislation to prevent Medicare payment cuts.

# — WASHINGTON REPORT —

*continued*

Beyond Medicare, the CNS continued its efforts to ensure a fair process for resolving out-of-network payment disputes between physicians and health plans by leading two amicus briefs challenging part of the [No Surprises Act](#) (NSA) rules. Rules implementing the NSA created a *de facto* federal payment benchmark based on median in-network rates — which unfairly favors insurers and violates the statute. Physicians prevailed in the [first lawsuit](#), and the court will issue its opinion in the second lawsuit in early 2023.

Finally, the advocacy efforts of the Coding and Reimbursement Committee resulted in several positive outcomes, including:

- In the final 2023 Medicare Physician Fee Schedule rule, the Centers for Medicare & Medicaid Services (CMS) reversed course and increased the final values for new arthrodesis codes (CPT® codes 22630, 22633 and 22634).
- The final 2023 Medicare Inpatient Prospective Payment System rule adopted appropriate MS-DRG assignment for laser interstitial thermal therapy.
- CMS provided pass-through device status for several promising technologies, including the Evoke® spinal cord stimulation system and Aprevo® custom intervertebral body fusion device. In addition, CMS agreed to unbundle payment for the EyeBOX concussion detection device.
- Neurosurgeons **Cheerag D. Upadhyaya**, MD and **Ketan R. Bulsara**, MD, were appointed to the Medicare Evidence Development and Coverage Advisory Committee.
- Coding and Reimbursement Committee chair, **Joseph S. Cheng**, MD, was appointed to the American Medical Association's CPT Editorial Panel — the important committee authorized to revise, update or modify CPT codes, descriptors, rules and guidelines.
- **Henry H. Woo**, MD, CNS CPT Advisor, was appointed to the CPT Assistant Editorial Board.

## ***Improving the Health Care Delivery System Continue — Coverage for Kids Expanded***

The CNS advocated for improvements in the nation's health care system, including expanding access to affordable health insurance coverage for every American. In particular, to ensure that children do not face any gaps in health insurance coverage, the CNS continued to advocate for legislation to extend the Children's Health Insurance Program (CHIP) permanently. While falling short of this goal, in the *Consolidated Appropriations Act, 2023*, Congress did extend funding for CHIP for an additional two years through fiscal year 2029. Additionally, Medicaid and CHIP will now offer 12 months of continuous coverage for children to ensure that the 40 million children on Medicaid and CHIP have uninterrupted access to health care throughout the year.

## ***Fixing the Broken Medical Liability System Remains a Challenge***

Despite facing strong headwinds in Congress, the CNS continued to advocate for common sense, proven comprehensive medical liability reform legislation, advancing several bills in Congress. Medical liability reform legislation based on proven reforms that are in place in California and Texas — the Accessible Care by Curbing Excessive LawSuits (ACCESS) Act ([H.R. 9584](#)) — was introduced by Reps. **Lou Correa** (D-Calif.) and **Richard Hudson** (R-N.C.). Additional liability protection for volunteers — the Good Samaritan Health Professionals Act ([S. 2941/H.R. 5239](#)) — and legislation to protect providers from COVID-19-related lawsuits — the Coronavirus Provider Protection Act ([H.R. 3021](#)) — were considered.

# — WASHINGTON REPORT —

*continued*

## **Advancing Medical Innovation and Access to New Technology**

The CNS continued to advocate for federal policies and funding to foster excellence and innovation in patient care. The *Consolidated Appropriations Act, 2023* helped pave the way by:

- Increasing funding for the National Institutes of Health (NIH), Food and Drug Administration (FDA) and other federal agencies, whose research investments are responsible for incalculable medical breakthroughs;
- Including measures to update the FDA's accelerated approval pathway and increase diversity in clinical trials;
- Incorporating the *Non-Opioids Prevent Addiction in the Nation (NOPAIN) Act*, establishing separate payments for certain non-opioid treatments in the hospital outpatient setting; and
- Extending current COVID-19 public health emergency telehealth flexibilities for two years through Dec. 31, 2024.

## **Supporting Quality Resident Training and Education**

An appropriate supply of well-educated and trained physicians is essential to ensure access to quality health care services for all Americans. Looming physician shortages — by 2033, the nation faces a physician shortfall of between 54,100 to 139,000 — threaten this access to care. To help ease this shortage and support quality resident training and education, the CNS successfully advocated for the re-introduction of bipartisan legislation to add 14,000 Medicare-sponsored residency training positions — the *Resident Physician Shortage Reduction Act* ([S. 834/H.R. 2256](#)). Congress continued to fill this gap, funding 200 additional Medicare-supported graduate medical education (GME) positions in the *Consolidated Appropriations Act, 2023*. This omnibus spending bill also increased funding for the Children's Hospital GME. Finally, the CNS supported legislation to defer medical student loan interest during a medical internship or residency program with the consideration of the Resident Education Deferred Interest (REDI) Act ([S. 3658/H.R. 4122](#)), which achieved strong bipartisan support.

## **Promoting Physician Wellness**

To improve mental health among health care professionals, the *Dr. Lorna Breen Health Care Provider Protection Act* was signed into law ([P.L. 117-105](#)). Endorsed by the CNS, this law establishes initiatives to address suicide, mental health, burnout and resiliency

of health professionals. The measure includes programs at the Health Resources and Services Administration to promote evidence-informed strategies to improve well-being among health care trainees and professionals. Additionally, a Centers for Disease Control and Prevention (CDC) program will help encourage health professionals to seek treatment for mental and behavioral health concerns.

## **Addressing the Nation's Firearms Crisis**

The CNS continued to support efforts to reduce gun violence by supporting the passage of the *Bipartisan Safer Communities Act* ([P.L. 117-159](#)), firearm safety legislation that would expand background checks, restrict certain individuals from owning firearms and provide incentives for states to enact "red-flag" programs. Additionally, the CNS advocated for additional funding for programs designed to prevent firearm injuries by teaching and encouraging proper firearm use, safety, storage and ownership responsibility. This advocacy paid off as Congress allocated \$25 million for firearm injury and mortality prevention research (\$12.5 for the NIH and \$12.5 for the CDC) in the *Consolidated Appropriations Act, 2023*.

## **Amplifying Neurosurgery's Message**

Beyond its direct lobbying and grassroots advocacy, the Washington Committee garners support for neurosurgery's health policy positions by carrying out a nationwide earned media campaign and by providing the media with timely information that can be used for their reporting. These efforts included op-eds, letters to the editor and briefings with reporters, resulting in multiple articles published in such media outlets as *AL.com*, *The American Spectator*, *Becker's Spine Review*, *Becker's ACS*, *The Hill*, *MedCity News*, *MedPage Today*, *Medscape*, *Orlando Sentinel*, *Politico*, *Ripon Advance* and *Washington Times*.

In addition, the Washington Office's digital media platforms continued to expand significantly, amassing an audience of more than 130,000. These communication tools include:

- [Neurosurgery Blog: More Than Just Brain Surgery](#), a web-based opinion and perspective column through which the CNS offers insights and perspective on contemporary health issues as they relate to organized neurosurgery; and
- Social media platforms, including [Twitter](#), [Facebook](#), [Instagram](#), [LinkedIn](#) and [YouTube](#).

# — GUIDELINES PROGRAM —



Since 2012, the CNS has demonstrated 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 over 200 volunteers in all aspects of the development process, from topic refinement and development of clinical questions to publication and dissemination.

In 2022, the CNS continued to advance the practice of neurosurgery through the development of clinical practice guidelines. Approximately 200 members of the CNS Guidelines Committee and its associated task forces, under the direction of Drs. Jennifer Sweet (Chair) and Anand Veeravagu (Vice Chair), continued work on twelve guidelines in development.

The CNS also advanced an unprecedented and successful three-year partnership with the Section on Disorders of the Spine and Peripheral Nerves to publish a comprehensive Perioperative Spine Guideline, including three parts (preoperative, intraoperative and postoperative). This initiative, is funded by a generous donation from the Section on Disorders of the Spine and Peripheral Nerves to the CNS Foundation.

## Program Highlights

- Twelve guideline topics are currently in development
- New topics to be published in 2023 include:
  - Perioperative Spine: Intraoperative
  - Functioning Pituitary Adenoma
  - Spinal Cord Stimulation
  - Chiari Malformation
- Updates to be published in 2023 include
  - Brain Metastases: Emerging Therapies Update
  - Occipital Neuralgia: Update



Jennifer Sweet, MD  
*Chair*



Anand Veeravagu, MD  
*Vice Chair*

## — DATA SCIENCE INITIATIVES —

As part of our mission to advance health and improve lives, the CNS is committed to the development and evaluation of novel strategies that improve data science initiatives related to neurosurgery. In keeping with our focus on education, CNS also strives to help educate practicing neurosurgeons to apply these data science tools in their own practice to improve health outcomes.

### 2022 Program Highlights

**Data Science Scholar Program:** The CNS, CNS Foundation and Viz.ai partnered in 2022 to continue the CNS Data Science scholarship, designed to provide residents with structured mentorship in the use of advanced data science techniques, including artificial intelligence, for research and practice improvement in neurosurgery. Dr. Andrew Abumoussa was selected as the 2022-23 recipient for his project studying the use of novel machine learning methods to better characterize the normal and abnormal networks in epilepsy patients who underwent intracranial monitoring.

*“My goal is to integrate data science into neurosurgical practice, driving advancements in clinical care for our patients. This gracious award from the CNS allows me to achieve these*

– Dr. Andrew Abumoussa



**Abstract Award:** Congratulations to our 2022 [Data Science Abstract award](#) winner, Alexander Cheung, MD. Neurosurgical Federated Learning: A Multi-center Collaboration to Detect Intracranial Hemorrhage Without Directly Sharing Data

CNS continued to offer a virtual Data Science Course in 2022, [Data Science and Image Analysis for the Neurosurgeon](#) provided an overview of various types of data science techniques, with a focus on image creating interpretable models to predict clinical outcomes. For more details, see the Education Division report on page 27.



Mohamad Bydon, MD  
Chair

## — STRATEGIC PARTNERSHIPS —

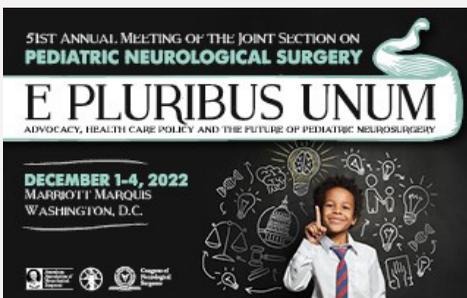
*Collaborating with Organized Neurosurgery to Advance Neurosurgical Training and Patient Care*

The Congress of Neurological Surgeons is committed to partnering with adjacent specialty and subspecialty societies to develop content and programs that advance the specialty and ultimately improve patient care. To that end, we continued to advance our partnership with the Sections and other neurosurgical organizations in 2022.

### Section Partnerships

For years, the CNS has partnered with the Sections, leveraging our reputation for relevant content, evidence based guidelines development, and innovative program delivery with the Sections' subspecialty expertise to deliver unparalleled educational programs and resources and provide outstanding service to members and volunteers.

### Section on Pediatric Neurological Surgery



The CNS was honored to partner for the first time with the Section on Pediatric Neurological

Surgery for their 2022 Annual Meeting held in Washington, D.C. December 1-4. The 2022 Annual Meeting, themed ***E Pluribus Unum: Advocacy, Health Care Policy and the Future of Pediatric Neurosurgery***, welcomed 424 in-person medical attendees and 52 virtual attendees.

Under the leadership of Section Chair, Bermans Iskandar and Annual Meeting Chair/Local Host, Robert F. Keating, the Scientific Program Committee presented two and a

half days of plenary sessions, four luncheon seminars and spirited debates on controversial topics. Featured keynote speakers included Wayne Al Frederick, President of Howard University, Yurii Perekopaiko from Kiev, Ukraine; George Ibrahim, Sameer K. Elbabaa, Karin M. Muraszko, and P. David Adelson. Over 70 abstracts were presented during the general session. In addition to the scientific program, the Section hosted valuable networking events where many members connected with their colleagues.

### Section on Disorders of Spine & Peripheral Nerves

The CNS also continues an unprecedented and successful three-year partnership with the Spine Section to publish a comprehensive Perioperative Spine Guideline, including three parts (preoperative, intraoperative and postoperative). Through this initiative, funded by a generous donation from the Spine Section to the CNS Foundation, the CNS published the first guideline on perioperative spine in 2021 and developed the second, Perioperative Spine: Intraoperative, in 2022 with plans to publish it in 2023.



**SpineSection.org**

AANS/CNS Section on Disorders of the Spine and Peripheral Nerves

## — STRATEGIC PARTNERSHIPS —

*Collaborating with Organized Neurosurgery to Advance Neurosurgical Training and Patient Care  
continued*

### Cerebrovascular Section



The CNS continues to manage the Section on Cerebrovascular Neurosurgery's administrative and Executive Committee business. This partnership has proven extremely valuable over recent years, helping the CNS better understand and anticipate the needs of cerebrovascular surgeons, and ensuring that CV Section

members and volunteers receive outstanding service and support.

In 2022, the CNS also partnered with the CV Section to deliver three webinars and three online town halls. The webinars, which covered microsurgical versus endovascular treatment options for dolichoectatic vertebrobasilar aneurysms, management of vascular complications and multimodality AVM management, were non-CME, and was well attended with over 100 attendees joining the live events.

### Neurosurgical Society Partnerships

In 2022, the CNS continued to extend its impact throughout neurosurgery by partnering with two key neurosurgical societies.

#### *American Academy of Neurological Surgery (AAcNS)*

We also continued our valued partnership with the American Academy of Neurological Surgery (AAcNS) in 2022, administering membership dues, and managing the organization's website and abstract center.

The Academy focuses on promoting, sponsoring and mentoring laboratory, translational, and clinical research in the neurological sciences, and CNS's expertise in abstract management is sure to enhance their success over the course of the partnership. ([americanacademyns.org](http://americanacademyns.org)).



American Academy  
of Neurological Surgery

#### *Society of Neurological Surgeons (SNS)*

The CNS was honored to continue its partnership with the Society of Neurological Surgeons (SNS) in 2022, managing the Society's administrative, membership and website support at no additional cost to the SNS. The CNS also managed the Society's first in-person meeting, post pandemic. The meeting, held May 21-24, 2022 was titled **Innovation in Education** and was hosted by Henry Ford Health System in Detroit, Michigan. It attracted 314 medical attendees to Detroit.

The opening session, "Transition to Neurosurgery Residency: Selection and Mentorship at the Undergraduate-Graduate Interface" included a "Mock RRC" session, as well as a session titled "Adult Learning Theories" led by guest speaker, Roy Phitayakorn, MD. On day two of the meeting, all programming took place at Henry Ford Hospital which included lunch in the new Henry Ford Cancer Institute. Session Six: "Global Neurosurgery – When the World is Flat," featured a talk by Mayor of Detroit, Mike Duggan. The meeting also covered topics "Teaching the Teacher", "OR of the Future and What Our Residents Need to Know Now" and "Disruptive Collaborations".

The SNS, which comprises U.S. academic department chairs, residency program directors, and other educational leaders, serves as the representative body for neurosurgery to the Accreditation Council for Graduate Medical Education, and plays a critical role in graduate and post-graduate education of Neurosurgical Residents and Fellows, making it a natural partner for the CNS and our commitment to providing educational and career development support for neurosurgeons at all career stages.

([societyns.org](http://societyns.org))



The Society of  
Neurological Surgeons

# — THE CNS FOUNDATION REPORT —



## Dear supporters of the CNS Foundation,

It has been a great honor to serve as your Chairs of the CNS Foundation. As well, we are profoundly humbled by your generous support of the philanthropic work done by our mighty team of Board members. You will see below that 2022 was a major year of giving back more than \$700,000 in awards and programs that truly and positively impact the careers of our future neurosurgeons and the well-being of patients around the world. With this growth requires a commitment to what we have created. I ask you to continue in your support in 2023. Our awardees and our future of neurosurgery depend on you, me, and every volunteer who has given time to the CNS Foundation.

The CNS Foundation Board expresses sincere appreciation to Medtronic, Stryker, MicroVention, Viz.AI, Penumbra, the Transatlantic Education Foundation, and many generous donors, for making these awards possible. Please give your attention and your thanks to the long list of our donors on pages 48-50. We also wish to thank the many volunteer mentors who have given their time to educate our growing number of awardees. Together, we are making profound contributions to neurosurgery and improving patient care around the world.

Sincerely,



**Martina Stippler, MD**  
CNS Foundation Co-Chair  
CNS Secretary



**Alexander Khalessi, MD, MBA**  
CNS Foundation Co-Chair  
CNS Vice President (2022)

# — THE CNS FOUNDATION REPORT —

*continued*



CNS Foundation Award Recipients gather at the 2022 CNS Annual Meeting.

## — International Pillar Awards —

**Clara Martin**, CNSF/CV Visitorship.  
Mentored by Brian Howard at Emory University.

**Rajesh Nair**, CNSF/CV Visitorship.  
Mentored by Adam Arthur at Siemmes Murphy

**Ramesh Vasudevan**, CNSF/CV Visitorship.  
Mentored by Oded Goren and Clemens Schirmer at Geisinger.

**Diego Devia**, CNSF/CV Visitorship.  
Mentored by Jan-Karl Burkhardt at University of Pennsylvania and Stavropoula Tjounmakaris at Thomas Jefferson University.

**Franly Vasquez**, Neurotrauma Visitorship.  
Mentored by David Okonkwo at University Pittsburg.

**Chrystal Calderon**, CNSF/MGH International Observership. Mentored by Brian Nahed at Massachusetts General Hospital.

**Martin Merenzon**, International Observership  
Mentored by Ricardo Komotar. Recipient of 2022 Tumor Observership at University of Miami.

**Andre Montiero**, UBNS HIDRA  
**Mission:** Brain Study

**Awarded Mentor: Brian Nahed**  
**Institution:** MGH Harvard Global Medical Institute  
**Focus:** Global neurosurgery and Tumor

**Awarded Mentor: Isabelle Germano**  
**Institution:** Icahn School of Medicine at Mount Sinai  
**Focus:** Tumor

**Awarded Mentor: Juan Carlos Fernandez-Miranda**  
**Institution:** Stanford University  
**Focus:** Skull base surgery

**Khoi Than**, International Observership at Duke Spine  
**Focus:** Spine

**Education without borders** – Complimentary educational access provided to international neurosurgeons to CNS Neurosurgical Emergencies Virtual Course. **Please support!** [foundation.cns.org/donate](https://foundation.cns.org/donate)

# — THE CNS FOUNDATION REPORT —

*continued*



## Diversity, Equity, and Inclusion Pillar Awards

**Stephen Miranda**, CNSF/DEI Abstract Award

**Oliver Young Tang**, CNSF/DEI Abstract Award

**Adela Wu**, CNSF/DEI Abstract Award

**Sukirti Chauhan**, CNSF Future Women Leaders in Neurosurgery Scholarship

**Smruti Patel**, CNSF Future Women Leaders in Neurosurgery Scholarship

**Alphadenti Harlyjoy**, CNSF Future Women Leaders in Neurosurgery Scholarship

## CNS Guidelines Pillar Awards

**Faith Robertson**, 2022 CNSF Quality Guidelines Scholar

## Clinical Scientist Career Development Pillar Awards

**Daniel Sexton**, Data Science Award, 2022

**Andrew Abumoussa**, Data Science Award, 2022

**Ananth Vellimana**, Joint Cerebrovascular Young Investigator's Award, 2022

**Isaac J. Abecassis**, Joint Cerebrovascular Young Investigator's Award, 2022

**Nicholas Au Yong**, NINDS/CNS Getch K12 Scholar Award, 2022-2023

**Todd Hollon**, NINDS/CNS Getch K12 Scholar Award, 2023-2024



Daniel Sexton



Ananth Vellimana

## Coming in 2023!

Pending announcement of Winners:

**DEI Scholar Awards**

**DEI Innovative Awards**

**DEI Impact Awards**

**2023 Future Women Leaders in Neurosurgery Awards**

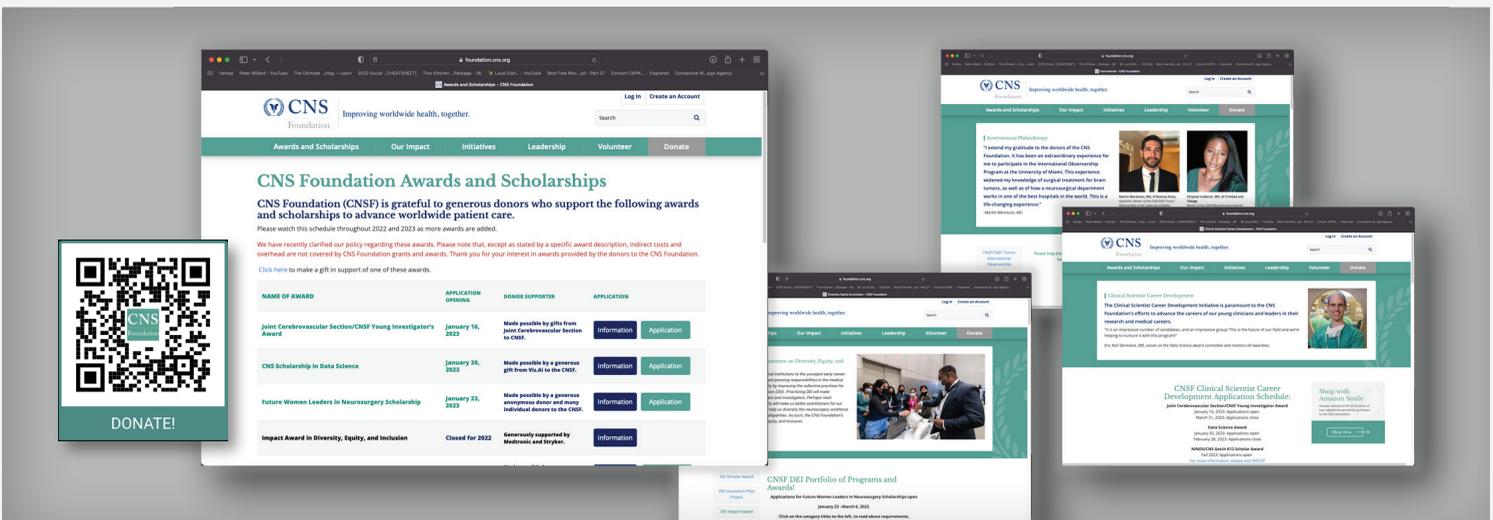


# — THE CNS FOUNDATION REPORT —

continued

## Schedule for 2023 CNS Foundation Application Windows.

All applications may be accessed at [Foundation.cns.org/awards](https://Foundation.cns.org/awards).  
For more information on specific applications, please refer to initiative website pages.



**Joint Cerebrovascular Young Investigator’s Award:** January 16 – March 31, 2023

**Three international observerships:** January 18– March 1, 2023

1. Icahn School of Medicine at Mount Sinai, Mentor Isabelle Germano
2. MGH Harvard Global Medical Studies, Mentor Brian Nahed
3. Stanford University, Mentor Juan Carlos Fernandez-Miranda

**CNS Foundation Scholarship for CNS Guidelines Quality,** February 6 – March 6, 2023

**Future Women Leaders in Neurosurgery Scholarships** January 23-March 1, 2023

**International Spine Observership at Duke University,** February 27- April 14, 2023

Please contact Courtney Johnson for further information or to donate today. [cjohnson@cns.org](mailto:cjohnson@cns.org) or (847) 805-4481.

— THE CNS FOUNDATION REPORT —  
continued

# Thank you, CNS Foundation Donors

## 2022 LEGACY CIRCLE \$20,000+

Anonymous..... ● | Khoi and Heather Zarrilli Than..... ● |

## 2022 INNOVATION CIRCLE \$5,000+

Ellen Air..... ■ | Nicholas Bambakidis..... ♥ | David Crawford..... ●

## 2022 VISION CIRCLE \$2,000+

Garni Barkhoudarian..... ■ | Daniel Hoh..... ■ | Martina Stippler..... ■  
Christopher Cifarelli..... ● | Brian Nahed..... ● | Sarah Woodrow.....  
Brian and Melissa Hoh..... ● | Laura Snyder..... ● | Barry Zimmerman..... ●

## 2022 ANNUAL ALLIES CIRCLE \$1,000+

James Arthur..... ■ | Stavros Maltezos..... ● | Chandra Sen..... ♥  
John Caruso..... ● | Peter Nakaji..... | Marjorie Wang..... ■  
Murali Guthikonda..... ● | Katie Orrico..... ■  
Elad Levy..... ● | Nader Pouratian..... ■

## 2022 LEADERSHIP CIRCLE \$500+

Joseph Adel..... ■ | Douglas Hardesty..... ● | Ganesh Rao..... ■  
Charles Agbi..... ♥ | Tiffany Hodges..... ■ | Clemens Schirmer..... ■  
Alan Appley..... ■ | Arthur Johnson..... | Warren Selman..... ●  
Ashok Asthagiri..... ■ | Courtney and Jim Johnson..... ■ | Regina Shupak..... ■  
Richard Boyer..... ● | Michael Kaiser..... | Scott Simon..... ●  
John Butler..... ● | Steven Kalkanis..... ■ | Justin Singer..... ●  
Daniel Carr..... | Alexander Khalessi..... ● | Ryan Tackla..... ●  
Lola Chambless..... ● | John Lopez..... ■ | Juan Torres-Reveron.....  
Anthony Chiurco..... ● | Edjah Nduom..... ● | Juan Valdivia-Valdivia..... ●  
Shakeel Chowdhry..... | Akash Patel..... ● | Jeremy Wang..... ■  
Yannick Grenier..... ● | Jeremy Phelps..... ● | Dennis Winters..... ♥

KEY: Years of Giving   ♥ = 10 year donors   ♥ = 8-9 year donors   ■ = 5-7 year donors  
● = 2-4 year donors   no symbol = First Year donor

— THE CNS FOUNDATION REPORT —  
continued

Thank you, CNS Foundation Donors 2022 *continued*

2022 FRIENDS OF THE CNS FOUNDATION \$1-499+

Rasiel Acosta Perez		Christopher Holland		Sittinon Sangkharo	
Shawn Adams	●	Brian Howard	●	Amir Shahram Makoui	●
Olusola Adedipe	■	Maged Kilada		Anil Singh	●
Cargill Alleyne	●	Dean Kostov	●	Prakash Singh	
Abraham Alvarado-Gonzalez		Barbara Lazio	●	Jirayu Siriyotthumrong	
Javier Amadeo	●	Lydia Leavitt		Annelise Sprau	
Dawn Antony	●	Marc Levin	●	Deanne Starr	●
Michael Ayad	●	SzuYuan Liu	■	Thomas Steineke	
Dickson Bandoh	●	Mark Lublin		Mark Stevens	●
Sylvia Bele	●	Grant Mallory	●	David Stockwell	●
David Berg	■	Erwin Mangubat	■	Ann Stroink	●
Clark Bernard	■	William McAllister	●	Oszkar Szentirmai	■
Austin Bowering		Alejandro Mendez Susaeta	■	Charles Taylon	■
Bruno Braga		Tori Miller	●	Hiroshi Tenjin	
James Brennan	●	Gorgan Mircea		Lee Tessler	■
Ruth Bristol		Eric Montgomery		Nicholas Theodore	●
Peter Bullock	●	Bradford Mullin	●	Jakov Tiefenbach	
Srinivasa Chakravarthi		Tomohiro Murakami	■	D. Roxanne Todor	♥
Juan Correa		Hidemitsu Nakagawa	●	Krystal Tomei	■
Davide Croci		Chinyere Obasi	●	Russell L Travis	
Reza Dashti	●	Kikuo Ohno	■	Kyle Tuohy	
Annie Drapeau	●	Brett Osborn		Jamie Ullman	♥
Michael du Trevou	●	Kimberly Page		Anand Veeravagu	
Idara Edem	●	Zain Peeran		Leonardo Vieira Neto	■
Adnan El Afinish		Bernardo Perez	■	Abdul Wahab Rasyid	
Carlos Estrada	●	Daniela Perez-Chadid		Jonathan Wasserberg	
Vernard Fennell	●	Deborah Pleasants	●	Anugrah Widhiatmo	
Joel Franck	■	Rabia Qaiser	●	Arthur Williams	■
Michael Freed	●	Juan Ramos-Acevedo		Ziv Williams	●
Marc Friedberg	■	Maryam Rahman	●	Theresa Williamson	
Jagath Lal Gangadharan		Patricia Rehring		Eduard Zverina	■
Bryan Gaspard	●	Patrick Reid	●		
Grant Gauger	■	Thomas Ridder			
Frank Genovese	■	Freddie Rodriguez			
William Gibson	●	Jose Rodriguez	●		
Michael Gieger	●	Rafael Rodriguez-Mercado	■		
Richard Gorman	■	Gail Rosseau			
Neal Haynes		Robert Ryan	●		

KEY: Years of Giving    ♥ = 10 year donors    ♥ = 8-9 year donors    ■ = 5-7 year donors  
● = 2-4 year donors    no symbol = First Year donor

— THE CNS FOUNDATION REPORT —  
continued

Thank you to all who purchased items through the CNS Foundation Silent Auction, raising **\$24,276!**



CORPORATE PARTNERS

STRATEGIC PARTNERS

Medtronic ..... ■  
Stryker

GUARDIAN PARTNERS

Penumbra ..... ●  
Viz.ai ..... ●

SECTION AND MEDICAL SOCIETY PHILANTHROPY PARTNERS

STRATEGIC PARTNERS

The CNS ..... ♥  
Pediatric Section  
Cerebrovascular Section ..... ●

GUARDIAN PARTNERS

TransAtlantic Education Foundation ..... ■  
Pain Section ..... ●

KEY: Years of Giving   ♥ = 10 year donors   ♥ = 8-9 year donors   ■ = 5-7 year donors  
● = 2-4 year donors   no symbol = First Year donor

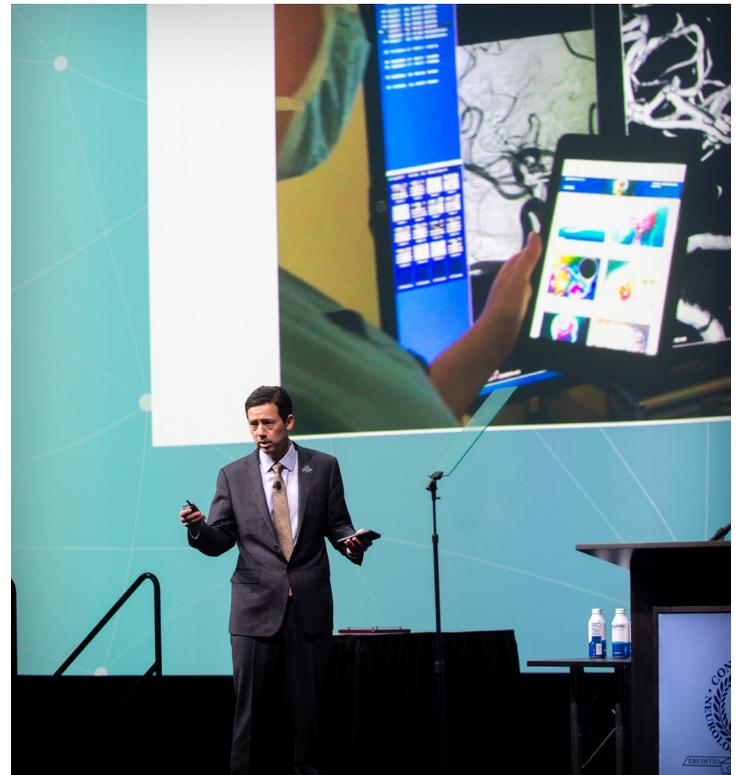
## — CORPORATE DEVELOPMENT —

*In 2022, the CNS Corporate Development initiatives went back to their roots with companies having a strong desire to support in-person courses and activities. Continuing to listen and partner with companies across all specialties in neurosurgery resulted in another successful year.*

We would like to thank the following companies for their support of our 2022 Non-Annual Meeting Activities.

### *In-Person Courses*

- **Spine Complications Course:** Medtronic, Globus Medical, NuVasive, Innovasis, DePuy Synthes, Brainlab Inc., and Durastat
- **Tumor Complications Course:** Stryker, Carl Zeiss Meditec Inc., NX Development Corp., Medtronic, and Integra LifeSciences
- **Career Guide Course:** Medtronic, DePuy Synthes, Viz.ai, and GT Medical Technologies Inc.
- **Leadership Institute:** Exclusive Supporter, Medtronic
- **Skull Base Fellows Course:** Medtronic, Stryker, Integra LifeSciences, KLS Martin, Carl Zeiss, Peter Latic, Mizuho America, Inc. Sophysa USA Inc., Karl Storz Endoscopy, Xoran Technologies LLC, Apex Medical Inc. and SPIWay LLC.



### *Virtual Courses, Sessions, and other Online Education*

- **Neurosurgical Emergencies Course:** Balt USA, NeuroOptics
- **Nexus:** Longevity Neuro Solutions

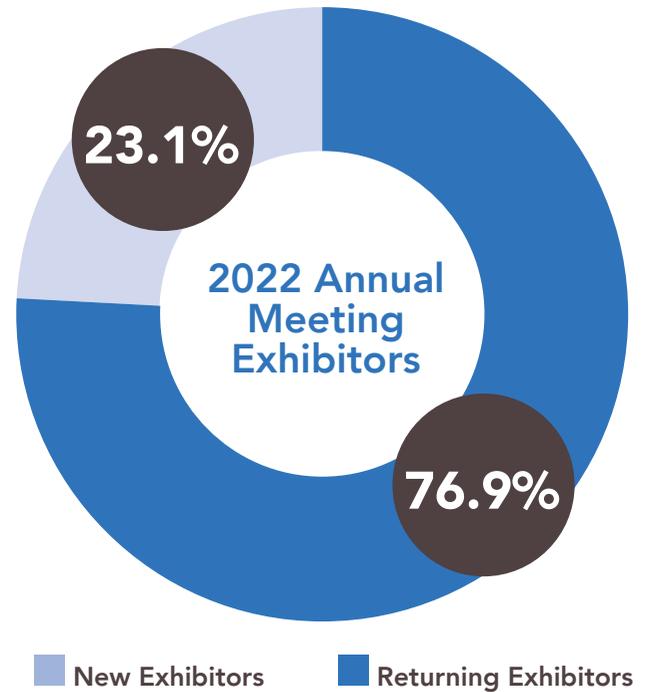
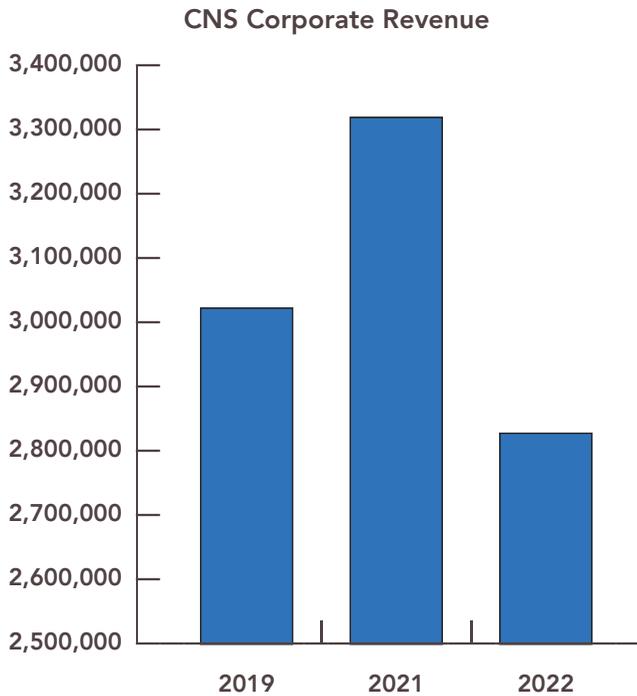
## — CORPORATE DEVELOPMENT —

**Annual Meeting Supporters:** Medtronic, Stryker, Integra LifeSciences, Aesculap Inc, , Johnson & Johnson Medtech, Merck & Co., Carl ZEISS Meditec, Brainlab, Globus Medical, MicroVention, Penumbra Inc, Medexus Pharma (Gleolan™), GT Medical Technologies Inc, Leica Microsystems, BK Medical, NuVasive, Mizuho America Inc, KLS Martin Group, Viz.ai, Longeviti Neuro Solutions, Insightec, Xoran Technologies LLC, Q’Apel Medical, Hyperfine Inc, as well as Apex Medical Inc, ATEC Spine, Axogen, Bioventus, Boston Scientific, Carlsmed, Cerenovus, DePuy Synthes, Elekta, IRRAS, Karl Storz Endoscopy, Life Instrument Corporation, Mitaka USA Inc, Monteris Medical, NICO Corporation, Olympus America Inc, Ominiscient Neurotechnology o8t, Phasor Health

LLC, RapidAI, Renishaw Healthcare Inc, SPIWay, Spine Wave Inc, Sonoclear, and Synaptive Medical

A total of 49 companies supported the CNS this year—a 20% increase from the previous year.

We continue to be both proud and grateful for the collaboration with companies in the field. Our partnerships allow the CNS the opportunity to provide products and solutions that help achieve our mission of enhancing health and improving lives through innovative neurosurgical education, advancement of clinical practice and scientific exchange.



**Clemens Schirmer , MD**  
Co-Chair



**Brian V. Nahed, MD, MSc**  
Co-Chair



**Khoi Than, MD**  
Vice Chair



**Daniel J. Hoh, MD**  
Advisor

## — INDUSTRY ALLIES COUNCIL —

The CNS is grateful for the ongoing support of our Industry Allies Council 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.

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**<sup>®</sup>

### PREMIER PARTNERS

AESCULAP<sup>®</sup>

INTEGRA<sup>®</sup>  
LIMIT UNCERTAINTY

Johnson & Johnson  
MEDTECH

### INDUSTRY ALLIES COUNCIL

 MERCK

 ZEISS

 BRAINLAB

Penumbra 

Gleolan<sup>™</sup>  
(aminolevulinic acid HCl)

 Microvention<sup>®</sup>  
TERUMO

 GLOBUS  
MEDICAL

 GammaTile<sup>®</sup>

# — FINANCIAL REPORT —

## Statement of Financial Position

December 31, 2022

### 2022 Assets

	Current	Prior Year	Increase/ (Decrease)
CNS Cash	\$ 2,406,927	\$4,406,411	(\$1,999,484)
Accounts Receivable	951,627	734,850	216,778
Pre-Paid Expenses & Deposits	1,035,347	1,091,762	(56,415)
Beneficial Interest	390,000	390,000	0
Investments	22,589,762	27,437,025	(4,847,264)
Equipment & Software	1,102,899	816,956	285,943
Joint Section Assets (Net)	4,738,571	4,738,571	(0)
<b>Total Assets</b>	<b>33,215,132</b>	<b>39,615,575</b>	<b>-6,400,443</b>

### 2022 Liabilities

Accounts Payables	523,561	1,549,331	(1,025,770)
Loan Payable	0	0	0
Deferred Rent	0	51,478	(51,478)
Accrued Expenses	789,471	1,004,683	(215,212)
Deferred Revenue-Dues	1,293,451	1,248,176	45,275
Deferred Revenue-Annual Meeting	279,400	276,875	2,525
Deferred Revenue-Journal	1,714,286	2,000,000	(285,714)
Deferred Revenue-Other	187,382	607,468	(420,087)
Net Payable - Foundation	108,794	260,388	(151,595)
<b>Total Liabilities</b>	<b>4,896,344</b>	<b>6,998,399</b>	<b>-2,102,055</b>

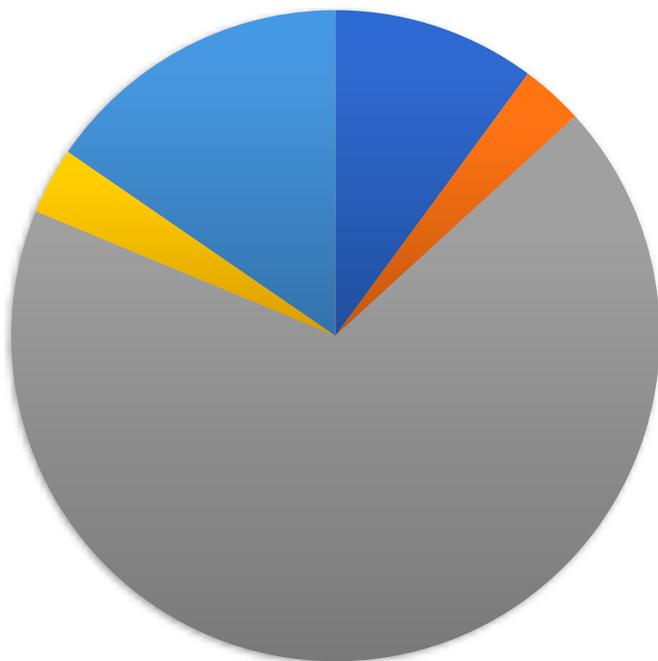
### Net Assets

Unrestricted	27,928,788	32,257,176	(4,328,388)
Permanently Restricted	390,000	360,000	30,000
<b>Total Net Assets</b>	<b>28,318,788</b>	<b>32,617,176</b>	<b>-4,298,388</b>
<b>Total Assets</b>	<b>33,215,132</b>	<b>39,615,575</b>	<b>-6,400,443</b>

# — FINANCIAL REPORT —

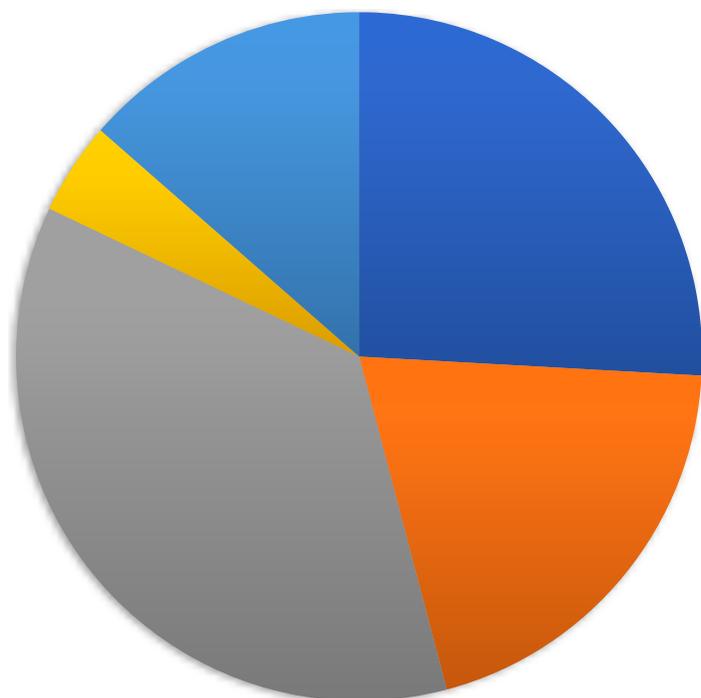
*continued*

## Assets as of December 31, 2022



- **Cash & AR**..... \$3,358,554
- **Prepaids**..... \$1,035,347
- **Investments**..... \$22,589,762
- **Fixed assets, etc.**..... \$1,102,899
- **Other**..... \$5,128,571

## FY22 Revenue



- **Membership Dues**..... \$3,210,446
- **Publications and Journal**..... \$2,482,112
- **Annual Meeting**..... \$4,488,520
- **Online Products**..... \$538,854
- **Other**..... \$1,685,628

## — 2023 PRESIDENT —



**Elad I. Levy, MD, MBA**

*2023 President,*

*Congress of Neurological Surgeons*

I am honored to have the privilege of leading the Congress of Neurological Surgeons in the year ahead. My predecessor, Dr. Nick Bambakidis, has left me with a vibrant and thriving organization, and I am grateful for his leadership and mentorship—not only in 2022, but throughout my tenure on the CNS Executive Committee. Congratulations Nick on all that was accomplished this past year!

The 2022 Annual Meeting in San Francisco was both exciting and essential, from the opening reception on the field at Oracle Park, to the more than 2,000 abstracts presented over the course of the week. Annual Meeting Chair Ashok Asthagiri, Scientific Program Chair Lola Chambless, and Vice Chair Garni Barkhoudarian, worked assiduously to deliver on Nick's vision, and demonstrated the importance of connectivity in our field. Congratulations to this team and to the dozens of Annual Meeting Committee members who contributed to this effort.

Congratulations also to Nader Pouratian, Akash Patel, Tiffany Hodges, and the many members of CNS's Education Division who continued to build our online and virtual learning opportunities, while still endeavoring to bring back all your favorite live courses. I would also like to congratulate the Education Division and staff for being awarded Accreditation with Commendation by the Accreditation Council for Continuing Medical Education (ACCME®).

Khoi Than, Laura Snyder, Akash Patel and the members of the SANS Committee successfully launched the last two exams in the CNS SANS ABNS Primary Board Exam bundle, after two years of exemplary volunteer efforts to craft critiques and develop reference lists for 2,800 SANS questions developed from ABNS primary exam question stems. Khoi Than and Edjah Nduom continued to expand our popular Nexus platform and build deeper engagement with members, and Brian Nahed, Ellen Air and Anand Veeravagu expanded the CNS Leadership Institute to include a webinar series, presented by the Harvard T.H. Chan School of Public Health.

As a Past Chair of the CNS Foundation, I am perhaps most proud of what Martina Stippler accomplished last year—granting more than \$700,000 in awards and programs that will have a major future impact upon the careers of our neurosurgeon awardees, their patients, and our field.

Looking ahead to 2023, I am excited about the future of our organization. Our new Editor in Chief, Doug Kondziolka, has an exceptional vision for *Neurosurgery* and our entire suite of publications. I am confident that under his leadership, they will continue to grow in reach, significance, and impact. Our 2023 Annual Meeting committee, under the leadership of Chair Lola Chambless, Scientific Program Chair Garni Barkhoudarian, and Vice Chair Edjah Nduom have already invested hundreds of hours in building an incredible scientific program, sure to both inspire and provide practical solutions for advancing your practice. Jason Ellis will be leading a new committee aimed at addressing the unique needs of our members across a variety of clinical practice settings, and our Education Division, under the continued leadership of Drs. Pouratian, Patel and Hodges will continue to expand our catalog to address your practice challenges, no matter what stage of your neurosurgical career.

All of this is possible only because of our team of talented and dedicated volunteers and staff. I am especially grateful for the support of our CEO Regina Shupak, whose experience and leadership are central to our continued growth and success.

I am deeply honored for the trust you have placed in me to serve as CNS President, and to lead this organization to consequential developments in 2023. I look forward with great enthusiasm to welcoming you all to the CNS Annual Meeting in Washington D.C. this fall.

## — MESSAGE FROM THE CEO —



**Regina Shupak**

*CEO, Congress of Neurological Surgeons*

As I reflect on another successful year at the Congress of Neurological Surgeons, I am reminded what an honor and privilege it is to serve you, our members, every day. You are the inspiration for everything we do and your participation and commitment to neurosurgery makes the CNS a stronger, more vibrant organization. We continue to value your membership and your involvement above all else. I am proud to share with you these highlights from 2022 and to celebrate the work of our CNS Executive Committee and the hundreds of volunteer surgeons serving on CNS committees and work groups.

First, I must congratulate and acknowledge our 2022 CNS President, Nicholas Bambakidis, whose steady and thoughtful leadership were essential in navigating our new normal and the successful return of many of our live courses. I am grateful for the opportunity to work with you and proud of all we have achieved.

We set out in 2022 to provide more meaningful opportunities for our members to reconnect. Our 2022 Annual Meeting certainly delivered on that promise. New additions at the meeting, from the CNS member lounge to new symposia and special focused abstract sessions made it easier for members to connect with colleagues who share their interests. We also brought back several of our valued live courses and continued building our virtual and on-demand offerings.

2022 was an especially busy year for our **Neurosurgery Publications** team, as we entered a new publishing contract with Wolters Kluwer and our new Editor-in-Chief, Douglas Kondziolka transitioned into his role. I am grateful to our former EIC, Nelson Oyesiku, for his years of service, his contributions to the journal and for his leadership during this transition. I am confident that under Dr. Kondziolka's leadership, our publications will continue to thrive.

The CNS Foundation (CNSF) had an incredible year, awarding a record 30 awards and grants totaling more than \$700,000! The impact these awards will have, not only on these surgeons' practice and careers, but also on their patients and global health cannot be overstated. The Foundation also brought back the successful Pathway to Neurosurgery program to the San Francisco meeting, giving another 24 high school students an immersive look at the field of neurosurgery. Congratulations to Foundation Chairs, Martina Stippler and Alexander Khalessi, for exceeding expectations in 2022.

We are, as always, grateful for our corporate partners and sponsors, and especially to our member companies of the CNS Industry Allies Council for the ongoing support of the CNS and its educational mission as well as for their significant support of CNSF this year. These partnerships are critical in helping the CNS expand our educational offerings and develop the tools and services our member need at every stage of their careers.

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. I am personally looking forward to working with visionary and inspiring leader and 2023 CNS President Dr. Elad Levy.

The 2023 CNS President Elad Levy and the CNS Executive Committee are committed to continuing to adapt and innovate our educational programs to meet your practice challenges, and we greatly value your feedback. 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 and our many volunteers in 2023!

## — 2022 EXECUTIVE COMMITTEE —



**Front row (L to R):** Regina Shupak, Daniel Hoh, Elad Levy, Nicholas Bambakidis, Alex Khalessi, Martina Stippler, Brian Hoh  
**Middle row (L to R):** Clemens Schirmer, Akash Patel, Mohamad Bydon, Laura Snyder, Khoi Than, Jennifer Sweet, Ashok Asthagri, Nader Pouratian, Ellen Air  
**Back row (L to R):** Jeffrey Mullen, Edjah Nduom, Anand Veeravagu, Tiffany Hodges, Lola Chambless, Garni Barkhoudarian, Peter Nakaji, Theresa Williamson  
**Not pictured:** Brian Nahed

## Officers

### President

Nicholas C. Bambakidis, MD

### President-Elect

Elad I. Levy, MD, MBA

### Vice-President

Alexander A. Khalessi, MD, MBA

### Secretary (21-24)

Martina Stippler, MD

### Treasurer (20-23)

Daniel J. Hoh, MD, MBA

### Past President

Steven N. Kalkanis, MD

## Members-at-Large

Ellen Air (20-22)

Tiffany Hodges (20-22)

Akash Patel (20-22) Office

## Ex-Officio Members

Ashok R. Asthagiri

Garni Barkhoudarian

Mohamad Bydon

Lola B. Chambless

Brian V. Nahed

Jeffrey Mullin

Peter Nakaji

Laura Snyder (21-23)

Khoi Than (21-23)

Anand Veeravagu (21-23)

Edjah Nduom

Nader Pouratian

Clemens M. Schirmer

Jennifer A. Sweet

Theresa Williamson

## Historian

Christopher E. Wolfla, MD

## CNS Executives

### CEO

Regina Shupak

## 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](mailto:info@cns.org)

[www.cns.org](http://www.cns.org)

# — 2023 EXECUTIVE COMMITTEE —



**Front row (L to R):** Garni Barkhoudarian, Akash Patel, Martina Stippler, Daniel Hoh, Alexander Khalessi, Elad I. Levy, Nicholas Bambakidis, Jennifer Sweet, Regina Shupak, Ashok Asthagiri, Lola B. Chambless

**Back row (L to R):** Theresa Williamson, J. Nicole Bentley, Brian Nahed, Sharona Ben-Haim, Khoi Than, Ellen Air, Peter Nakaji, Clemens Schirmer, Tiffany Hodges, Jeffery P. Mullin, Edjah Nduom, Laura Snyder, Mohamad Bydon, Jason Ellis, Kunal Vakharia, Adnan Siddiqui

**Not pictured:** Veeravagu, Pouratian

## Officers

### President

Elad I. Levy, MD, MBA

### President-Elect

Alexander A. Khalessi, MD, MBA

### Vice-President

Jennifer A. Sweet, MD

### Secretary (21-24)

Martina Stippler, MD

### Treasurer (20-23)

Daniel J. Hoh, MD, MBA

### Past President

Nicholas C. Bambakidis, MD

## Members-at-Large

Sharona Ben-Haim (22–24)

Edjah K. Nduom (22–24)

Laura A. Snyder (21–23)

Khoi D. Than (21–23)

Anand Veeravagu (21–23)

Theresa Williamson (22–24)

## Ex-Officio Members

Ellen L. Air

Ashok R. Asthagiri

Garni Barkhoudarian

J. Nicole Bentley

Mohamad Bydon

Lola B. Chambless

Jason Ellis

Tiffany Hodges

Jeffery P. Mullin

Brian V. Nahed

Peter Nakaji

Akash Patel

Nader Pouratian

Clemens M. Schirmer

Adnan Siddiqui

Kunal Vakharia

## Historian

Christopher E. Wolfla, MD

## CNS Executives

### CEO

Regina Shupak

## 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](mailto:info@cns.org)

[www.cns.org](http://www.cns.org)



CONGRESS OF NEUROLOGICAL SURGEONS

— 2022 ANNUAL REPORT —



Congress of  
Neurological  
Surgeons