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Congressquarterly

SUMMER 2024



EXPLORING Neurosurgery Origins

2024 ANNUAL
MEETING
Houston, TX



Congress of
Neurological
Surgeons

11 Weekend Symposia and
Seminar Highlights

22 The CNS Xperience Lounge:
A Place to Relax, Interact,
and Learn

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Congress of
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Surgeons

EDITOR'S NOTE



Ellen L. Air
2023-24 Co-Editor



Clemens M. Schirmer
2023-24 Co-Editor

Dear Members of the Congress of Neurological Surgeons and Colleagues,

We are excited to present the latest issue of the *Congress Quarterly*, focusing on the rich tapestry of experiences and knowledge that will converge at the upcoming CNS Annual Meeting in Houston, Texas. This year's theme, "Neurosurgery Origins," invites us

to reflect on our field's roots and pioneering spirit, persevering with innovation while honoring the past that has shaped us.

In this issue, we bring you a preview of what promises to be an unparalleled gathering of minds in neurosurgery. From high-profile keynote speakers to cutting-edge scientific presentations and symposia, the meeting in Houston is set to be the largest and most inspiring event in our history.

One of the highlights detailed in this issue is the welcoming environment Houston offers, a city renowned for its dynamic blend of culture and science. The 2024 CNS Annual Meeting will harness this energy, providing a unique platform for neurosurgeons from all over the world to not simply observe, but actively participate, network, collaborate, and share their latest research and clinical advances.

This issue also casts a spotlight on the innovative programming that awaits at the meeting, including special symposia that integrate multidisciplinary insights and foster collaborative efforts across specialties. These sessions, ranging from data-driven neurosurgery to advances in diversity and inclusion, reflect the CNS' commitment to pushing the boundaries of what our field can achieve.

We also look forward to the expansive educational opportunities provided through our detailed program. This year, particular emphasis has been placed on the practical application of knowledge, with workshops and hands-on sessions designed to enhance skills and apply new technologies in neurosurgical practice. Whether it's the latest in surgical techniques, or the newest frontiers in neuroscientific research, our meeting ensures that every participant can find something to enrich their professional journey.

Moreover, the CNS Annual Meeting serves as a beacon for the next generation of neurosurgeons, with programs specifically tailored for medical students and residents. We deeply appreciate the contributions of these young professionals, who are not only the future of neurosurgery, but also a vital presence that energizes our assembly with fresh perspectives and pioneering ideas.

As co-editors, we are particularly proud of our community's strides in areas such as wellness and work-life balance. The CNS is at the forefront of these efforts, offering sessions that focus on the well-being of neurosurgeons, acknowledging the challenges of our demanding field, and providing resources to manage stress and prevent burnout.

As we look forward to the 2024 CNS Annual Meeting, we invite you to dive into this issue of *Congress Quarterly*. Let it serve as your guide and inspiration for what we anticipate will be an extraordinary gathering filled with learning, innovation, and camaraderie.

We look forward to welcoming you all in Houston!

CONTENTS



8

Editor's Note

Ellen L. Air, Clemens M. Schirmer

President's Message

Alexander A. Khalessi

THE ANNUAL MEETING ISSUE "NEUROSURGERY ORIGINS"

- 4** A Preview of the 2024 CNS Annual Meeting
Garni Barkhoudarian, Edjah K. Nduom, Khoi D. Than, Alexander A. Khalessi, April Martin
- 8** Welcome to Houston: Local Host Perspective
Akash J. Patel
- 9** Highlights of Neurosurgical Innovation and Data-Driven Neurosurgery
Mohamad Bydon, Anand Veeravagu, Eric Oermann
- 10** Collaborative Special Symposia
Garni Barkhoudarian, Joseph Osorio, Jeffrey Mullin
- 11** Weekend Symposia and Seminar Highlights
Edjah K. Nduom



21

13 Section and Case-Based Sessions

Khoi D. Than, Edjah K. Nduom

15 Advancing Diversity and Inclusion in Neurosurgery: A Path Forward

Tiffany R. Hodges, Maryam Rahman, Kunal Vakharia

16 Medical Student Programming

Nicole Bentley

17 International Highlights at the CNS Annual Meeting and Meeting of the Americas 2024

Peter Nakaji, Brian Nahed

18 Neurosurgery Publications: Educational Series on Manuscript Preparation

Douglas Kondziolka, Alexandra Giantini Larsen

21 Congress of Neurological Surgeons Wellness Initiatives

Theresa Williamson

22 The CNS Xperience Lounge: A Place to Relax, Interact, and Learn

Garni Barkhoudarian



23

23 "The Art of Neurosurgery" Expands in 2024

Lola B. Chambless

24 The CNS Exhibit Hall: A Meeting Point for Neurosurgical Innovation

Lola B. Chambless, Mohamad Bydon

FOUNDATION UPDATE

26 CNS Foundation Update

Martina Stippler

INSIDE THE CNS

27 Washington Committee Report

Russell R. Lonser

CNSQ INSIDE BACK COVER

Images in Neurosurgery

PRESIDENT'S MESSAGE

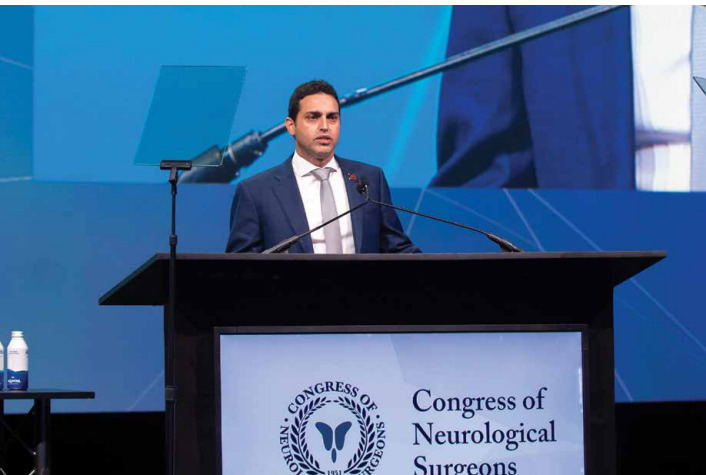


Alexander A. Khalessi, MD, MBA
President, Congress of Neurological Surgeons

Dear Colleagues,

It is my honor and pleasure to invite you and your family to the 2024 CNS Annual Meeting from September 28-October 2 in Houston, TX. Our theme, *Neurosurgery Origins*, explores the founding principles of our specialty in the context of emerging technologies. There is so much more we can offer patients today in our treatment of neurologic disease.

Partnering with a spectacular team of Garni Barkhoudarian (AMC), Edjah Nduom (SPC), and Khoi Than (Vice SPC), we have built a robust scientific program powered by a historic number of abstract submissions. Our time together will foster authentic opportunities for collective reflection, celebrate neurosurgical exceptionalism, and energize our efforts to bring cutting edge science back to our patients.



An outstanding lineup of next generation physician scientists and clinicians headline each general scientific session, punctuated by powerful keynote addresses from our 2024 Walter E. Dandy Orator, Earvin "Magic" Johnson, and our Dr. Dorothy Nash Speaker, the Right Honourable Dame Jacinda Ardern.

Throughout the program, we have created valuable opportunities for our members to present their groundbreaking original science. Be sure to catch these presentations in our sunrise sessions, section sessions and our Interactive Multimedia Research Presentation Session. Our optional courses offer a further opportunity to make the most of your time in Houston by customizing your meeting experience. For example, we are proud to introduce several new offerings in Houston, TX—like our new "Neurosurgeon Scientist Symposium," "Navigating Neurosurgery Beyond Academia: Strategies for Success in Practice" and "Essentials for a Rewarding Neurosurgical Career."

Our collaboration with sub-specialty societies continues to have impact. The North American Skull Base Society (NASBS) will partner for our joint symposium, "Sellar and Suprasellar Tumors," and we are proud to introduce a new Symposia: "Spinal Deformity Primer for All Neurosurgeons" in conjunction with the Scoliosis Research Society (SRS). As always, our Joint Sub-Specialty Sections provide core specialty tracks of named lectureships, abstract poster sessions, guidelines, and expert case-based discussion. Their expanded footprint ensures representation of the breadth and depth of neurosurgery at CNS. Be sure to check out Dr. Barkhoudarian, Osorio and Mullin's update on page 10.

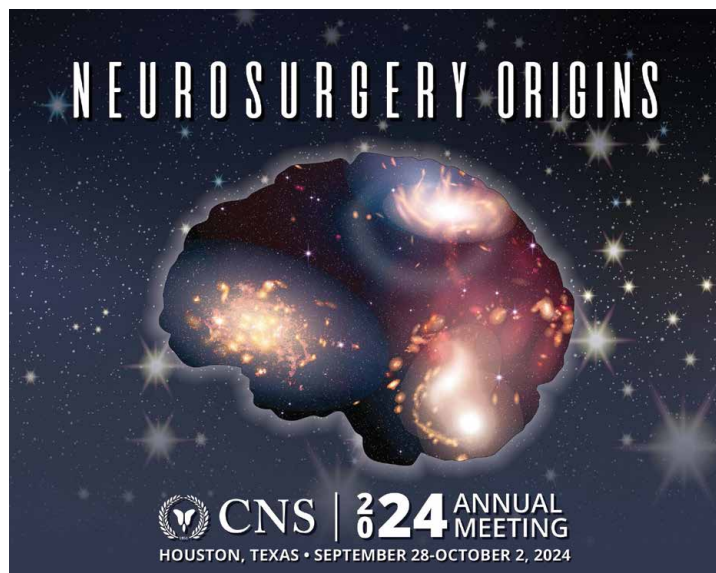
The CNS remains proud partners with the American Society of Black Neurosurgeons (ASBN) and Women in Neurosurgery (WINS)

to further spotlight and inform our dialogue around diversity in neurosurgery. The CNS Foundation (CNSF) will bring to Houston the celebrated Pathways to Neurosurgery program that successfully introduces local urban high school students to neuroscience and technologies at the CNS Annual Meeting. For details, see Dr. Hodges, Rahman and Vakharia's update on page 15.

It is my great privilege to continue the greatest of CNS traditions in celebrating our 2024 Honored Guests, Drs. Henry Brem and Steven Giannotta.

Dr Henry Brem is the Harvey Cushing Professor of Neurosurgery at The Johns Hopkins University, Director of the Department of Neurosurgery, and Neurosurgeon-in-Chief. Over the course of his 40-year career, Dr. Brem has pioneered novel treatment approaches to brain tumors. He has trained generations of neurosurgical leaders and established one of the leading departments of neurosurgery in the country.

Dr. Steven Giannotta, a distinguished Professor of Neurological Surgery at the University of Southern California (USC) and Chair from 2004-2024, boasts a remarkable career spanning over four decades. Dr. Giannotta has gained international recognition for the complex surgical treatment of cerebrovascular disease and thought leadership in residency training at the RRC and sub-specialty fellowship training as a founding leader of CAST. Dr. Giannotta has a unique record of leadership and service to our specialty.



This is just a glimpse of all we have planned for Houston. Throughout this issue of *Congress Quarterly*, members of our Scientific Program Committee have shared more details about a program bursting with content. On behalf of the CNS Executive Committee and the entire Annual Meeting Committee, I want to express our gratitude to these volunteers for their work in bringing our meeting theme, *Neurosurgery Origins* to life.

With great anticipation, we are awaiting your arrival in Houston, TX. Famous for space exploration, world-class museums, diverse communities, and incredible cuisine, be ready to enjoy an unmatched cultural experience with friends and colleagues. Be sure to bring a guest or your family to enjoy all this city has to offer; see you soon! 🇺🇸

Sincerely,

Alexander A. Khalessi, MD, MBA

President, Congress of Neurological Surgeons

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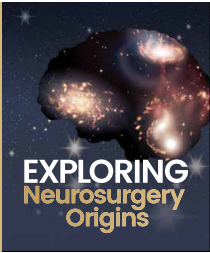
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Garni Barkhoudarian, MD



Edjah K. Nduom, MD



Khoi D. Than, MD



April Martin

A Preview of the 2024 CNS Annual Meeting



On behalf of the Annual Meeting team, led by President Dr. Alexander A. Khalessi and Annual Meeting Chair, Dr. Garni Barkhoudarian, we are excited to welcome you all to the largest scientific meeting in neurosurgery: the 2024 CNS Annual Meeting in Houston, Texas! We hope our meeting theme, "Neurosurgery Origins," will help attendees get in touch with what has made the field of neurosurgery a leader in innovation and neuroscience. We at the CNS are proud of the many ways that we have supported innovation over our history, and we are excited to share more innovative content with you in Houston! Here, we will give you a brief taste of all we hope you will experience this fall.

A Welcoming Environment

It is a tremendous source of pride to all of us at the CNS that the Annual Meeting is viewed as one of the most open and welcoming events in all of neurosurgery. From medical students (who attend FREE!) to department chairs, every attendee of every background can find their home at the CNS Annual Meeting. With premium social events, like our Opening Reception at the Marriott Marquis Houston, and our International Reception, there are numerous social spaces throughout the meeting for colleagues to meet, reconnect, and spark new collaborations. Interested in organizing your own reunion or meetup? Get in touch with us. We'll help you make it happen!

The Home for Neurosurgical Innovation

Innovation has been one of the hallmarks of the CNS Annual Meeting. Look for the innovation track in our preliminary program, where you will find curated content for the entrepreneurially minded amongst us. "Transforming Neurosurgery through Technology: The Innovation Symposium," makes its return in 2024. We will also host a multidisciplinary pre-meeting "Data Science Symposium." Those who want to learn how to handle big data themselves can attend "CNS Data Science and AI for Neurosurgeons: A Hands On Experience," where attendees will actually tackle a project together with our stellar faculty.

Welcome Partner Societies!

We are proud to continue to welcome our international partners, the Neurological Society of India (NSI), the Brazilian Society of Neurosurgery (SBN), and the Japanese Congress of Neurological Surgeons (JCNS), and our colleagues from across the globe. The first "Meeting of the Americas" was a resounding success, and we expect that the 2024 edition will be even more successful in Texas! We are thankful for our ongoing partnership with the North American Skull Base Society (NASBS). This year, we will also be hosting a pre-meeting symposium with the Scoliosis Research Society (SRS).

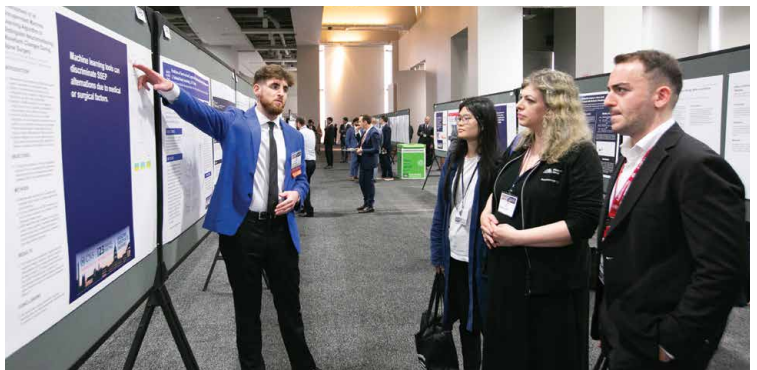
A City to Savor — Houston, TX

Houston is one of the most diverse cities in the nation, and its varied peoples have brought their own flavors to the local dining scene. You can find everything from a casual Ghanaian restaurant to world class sushi, to James Beard-award winning American cuisine. There is more to Houston than “Tex-Mex” and brisket, but those are excellent, too! The seafood scene deserves particular mention as does the strength of the Asian culinary offerings, given the strong immigrant communities who have set up outposts in the city. Start making reservations with colleagues today!



Centering Your Health

To face the challenges we are presented as neurosurgeons, we need a healthy and balanced workforce. To that end, the CNS has invested in several very popular wellness offerings at the Annual Meeting. Whether you are trying to catch a CNS Past President on the CNS 5K leaderboard or taking a moment for yoga in the CNS Xperience Lounge, there are many opportunities for you to learn ways to recharge during the meeting. Need more than a few vinyasas to find your best self? Join us before the meeting for our first ever CNS Wellness Retreat at Houston’s only 5-star hotel, the Post Oak Hotel. The retreat offers individuals 2 days of content designed to reduce stress and improve work-life balance plus an opportunity to visit the hotel’s luxurious spa. For more details see: <https://www.cns.org/annualmeeting/program/wellness>



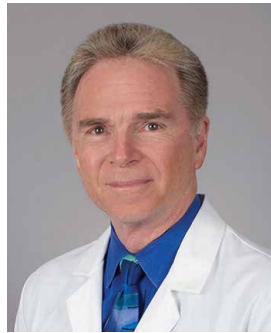
Groundbreaking Science

It is our commitment at the CNS to be the preferred destination for neurosurgeon-scientists to share their work with the world. We have the largest footprint for peer-reviewed oral presentations in our field, and we are proud to give many of our attendees their first ever neurosurgical oral presentation. We know that many of these presenters will become our neurosurgical leaders of the future. With innovative and successful abstract sessions in topics like medical education, healthcare disparities, and data science, we have created new ways for neurosurgeons to showcase their unique contributions to the literature. Missed the abstract deadline? Don’t miss the late breaking abstract deadline on June 20.

We look forward to welcoming you all in Houston!



HONORED GUESTS



Dr. Steven Giannotta

Dr. Steven Giannotta, a distinguished Professor of Neurological Surgery at the University of Southern California (USC) since 1980, and the Chair from 2004-2024, boasts a remarkable career spanning over 4 decades. Graduating from the University of Michigan with his medical degree, he subsequently completed his neurosurgical residency there, laying the foundation for his expertise. Dr. Giannotta's influence extends beyond USC; he actively participates in numerous local, national, and international committees and organizations, showcasing his commitment to advancing neurosurgery globally.

His national leadership roles within the CNS are particularly noteworthy, including serving as Annual Meeting Chair and Vice President. Recognition of his contributions have come in various forms, such as the CNS Distinguished Service Award, the Drake Lecturer honor, and the Founders Laurel Award.

Beyond the CNS, Dr. Giannotta has held pivotal positions in organized neurosurgery, including chairing the Joint Cerebrovascular Section and presiding over the American Academy of Neurological Surgeons. He has played instrumental roles in education, certification, and accreditation processes for neurosurgery, serving as Chair of the American Board of Neurological Surgery and contributing significantly to the Residency Review Committee for Neurosurgery.

With clinical expertise spanning cerebrovascular disease and cranial base surgery, Dr. Giannotta has treated thousands of patients, earning recognition for his adeptness in intracranial aneurysms, acoustic neuromas, and trigeminal neuralgia. His collaborative approach to complex cranial base lesions underscores his commitment to comprehensive patient care.

Throughout his tenure as Program Director at LAC+USC Medical Center/University of Southern California Neurosurgery Residency Program, Dr. Giannotta has nurtured future generations of neurosurgeons. Now serving as Associate Program Director, he continues his dedication to supporting residents and advancing neurosurgical excellence.



Dr. Henry Brem

Dr. Henry Brem, the Harvey Cushing Professor of Neurosurgery at Johns Hopkins University, is a transformative figure in the field of neurosurgery. With groundbreaking innovations and dedicated leadership, he has revolutionized treatment approaches for brain tumors, earning global recognition.

His pioneering work includes introducing navigational imaging and developing Gliadel® wafers for targeted chemotherapy delivery during surgery, which ultimately led to FDA approval. Dr. Brem's research, spanning over four decades, has not only advanced surgical techniques, but also delved into intraoperative imaging, angiogenesis, immunotherapy, and drug delivery polymers.

As Director of the Department of Neurosurgery at Johns Hopkins, Dr. Brem has fostered a culture of excellence, attracting top-tier talent and establishing one of the world's premier brain tumor research centers. Under his guidance, the department consistently ranks among the nation's best, earning accolades from US News & World Report.

Beyond his clinical and research endeavors, Dr. Brem is committed to patient safety and interdisciplinary collaboration. He has played key roles in medical school-wide safety initiatives, chaired search committees, and spearheaded collaborations across disciplines, including founding the Johns Hopkins Brain Science Institute.

Dr. Brem's impact extends globally, with collaborative efforts in the Washington, DC region and initiatives to establish neurosurgical programs worldwide. He has also championed philanthropy, raising substantial funds to support research and innovation in neurosurgery.

Dr. Henry Brem's visionary leadership and groundbreaking contributions have reshaped the landscape of neurosurgery. His legacy extends through his trainees, who continue to make strides in science and medicine worldwide, while he remains dedicated to advancing patient care and leading the Johns Hopkins Neurosurgery Department.

FEATURED SPEAKERS



EXPLORING
Neurosurgery
Origins

The CNS has gathered some of its most exciting speakers ever for the 2024 Annual Meeting in Houston. Whether you are looking for a little “Magic” or to hear from giants of neurosurgery, you will find inspiration on the General Scientific Session stage. This year, we are excited to announce that the 2nd Annual Dorothy Nash Speaker will be The Right Honourable Dame Jacinda Ardern. Learn more about our speakers below.

Earvin “Magic” Johnson

Earvin “Magic” Johnson, as Chairman and CEO of Magic Johnson Enterprises, has seamlessly transitioned from basketball legend to businessman, focusing on providing high-quality products and services tailored to ethnically diverse and underserved urban communities. Over three decades, Johnson has garnered attention through groundbreaking partnerships, notably with Sony Pictures and Starbucks, catalyzing urban redevelopment and setting corporate standards nationwide.



In 2023, Johnson made sports history as co-owner of the Washington Commanders, with the team’s acquisition marking the highest purchase price for any U.S. professional sports team to date. His sports portfolio also includes ownership stakes in the Los Angeles Dodgers, Los Angeles Sparks, Los Angeles Football Club, and eSports franchise, Team Liquid.

Expanding his influence, Johnson controls EquiTrust and SodexoMAGIC, while venturing into infrastructure and technology through MJE-Loop Capital Partners. Notably, he invested in Skydio, the first U.S. drone manufacturer to exceed \$1 billion in value.

Johnson’s life and achievements are chronicled in *They Call Me Magic*, an AppleTV+ documentary series that dominated charts upon its 2022 release. With a unique position spanning industries and generations, Johnson aims to drive companies’ expansion and foster positive impact globally and domestically. His unparalleled success and dedication make him a driving force in business, with a lasting legacy of empowerment and innovation.


The Right Honourable Dame Jacinda Ardern

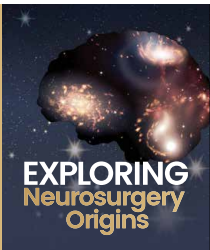
The Right Honourable Dame Jacinda Ardern became the Prime Minister of New Zealand at just 37 years of age. During her time in office, she faced the challenges of a live-streamed domestic terror attack against New Zealand’s Muslim community, a volcanic eruption, and the COVID-19 pandemic. Ms. Ardern’s focus on people, kindness, and what she has called “pragmatic idealism” saw New Zealand achieve some of the lowest loss of life experienced by any developed nation through the pandemic, the ban of military-style semi-automatic weapons in her country, and the creation of the “Christchurch Call” to eliminate violent extremism online, for which Ms. Ardern continues to hold the role of Special Envoy.



Ms. Ardern is a champion of women’s empowerment. While in office, New Zealand reached 50 percent representation of women in parliament and on government-appointed boards. She decriminalized abortion, improved pay equity laws, and extended paid parental leave to six months, all while being only the second woman in the world to have a baby while leading her country.

Ms. Ardern is a passionate advocate of climate action and is a board member of The Earthshot Prize, focusing on solutions to climate change and environmental issues. She is also an Arnhold Distinguished Fellow at Conservation International, where she is advocating for climate action and better treatment of the environment. Ms. Ardern holds an Honorary Doctorate from Harvard University.

Ms. Ardern is the 2023 Angelopoulos Global Public Leaders Fellow at the Harvard Kennedy School and the Hauser Leader in the School’s Center for Public Leadership. She is also the Knight Tech Governance Leadership Fellow at Harvard Law School’s Berkman Klein Center for Internet and Society, where she is focused on ways to improve content standards and platform accountability for extremist content online. 



Akash J. Patel, MD

Welcome to Houston: Local Host Perspective

I am delighted to extend a warm welcome to our esteemed colleagues as we gather in Houston, Texas for the 2024 CNS Annual Meeting, “Neurosurgery Origins”.

Houston, the largest city in Texas and the fourth-largest in the United States, boasts a rich history and has blossomed into a dynamic metropolitan hub renowned for its diverse culture, top-tier medical facilities, thriving arts scene, and pioneering contributions to space exploration. Established in 1836, Houston briefly served as the capital of Texas before the seat of government moved to Austin. In 1844, the Port of Houston was founded, quickly evolving into one of the nation’s largest and busiest ports. The Texas Medical Center, established in the early 1940s, stands today as one of the world’s foremost medical complexes, conducting over 10 million patient encounters and 180,000 surgeries annually.



The venue for the 2024 CNS Annual Meeting will be the George R. Brown Convention Center, located in the heart of downtown Houston. This cutting-edge facility offers ample space and modern amenities for our event. Houston’s status as one of America’s most ethnically diverse cities ensures a tantalizing array of authentic global cuisines, from Mexican and Chinese to Vietnamese and Nigerian, making it a paradise for food enthusiasts. Surrounding the convention center, attendees can explore a plethora of dining options, ranging from classic “Tex-Mex” fare to innovative international dishes. In the evenings, you can experience the lively nightlife and music scene in Houston’s vibrant neighborhoods and districts.

Beyond the convention center, Houston beckons with a variety of attractions and activities. Explore renowned museums such as the Museum of Natural Science, Museum of Fine Arts, and the Children’s Museum of Houston. Nature lovers can enjoy the serene beauty of the Houston Arboretum & Nature Center, or take a leisurely stroll through Buffalo Bayou Park.

For history buffs, the San Jacinto Monument and Museum, just outside Houston, commemorates the pivotal battle for Texas’ independence from Mexico. The Rice University football stadium stands as a historic site where President John F. Kennedy declared America’s commitment to space exploration, leading to the establishment of the Lyndon B. Johnson Space Center, a cornerstone of Houston’s legacy in space exploration.



We are thrilled to welcome the CNS community to Houston and look forward to showcasing the city’s rich culture, world-class medical institutions, and vibrant energy. I hope that our attendees will have the opportunity to explore all that Houston has to offer during their time with us. We look forward to an engaging meeting and introducing you to all that makes “Space City” so stellar. 🌟



Anand Veeravagu, MD



Eric K. Oermann, MD



Mohamad Bydon, MD

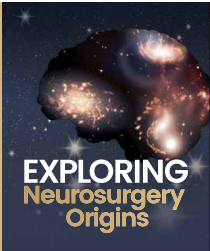
2024 CNS Annual Meeting: Highlights of Neurosurgical Innovation and Data-Driven Neurosurgery



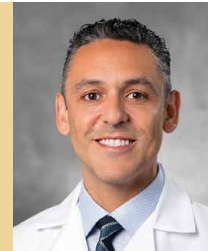
Currently, a data-driven approach is considered the cornerstone of evidence-based practice across specialties. It is now more important than ever for both aspiring and practicing neurosurgeons, to be exposed to data science-related practices in the field, as well as to become familiar with ways to incorporate data science models into their practice. Having a deep understanding of data science is crucial for appraising findings reported in the published literature, leveraging existing neurosurgical datasets to develop or use data science models, as well as for contributing to the implementation of data-driven practices in the department. Currently, a data-driven approach is considered as the cornerstone of evidence-based practice across specialties and could not be more relevant to the current neurosurgical clinical practice and research development.

In the last few years, CNS Annual Meetings have invited members to delve deeper into the world of advanced healthcare analytics related to neurosurgical care. Having a deep understanding of data science is critical for all currently practicing and aspiring neurosurgeons, as it allows for appraising findings reported in the published literature, leveraging existing neurosurgical datasets to develop or use data science models, as well as for contributing to the implementation of data-driven practices in neurosurgical practice. Previous CNS Annual Meetings have covered a broad range of topics related to neurosurgical innovation and the vision of a data-driven neurosurgery department by hosting scientific sessions and symposia, such as the “Transforming Neurosurgery through Technology (TNT) Symposium” or the morning “Sunrise Science Session - Data Science” with Dr. Oermann last year. The success of these past events has inspired programming for this year’s Annual Meeting. In fact, data-driven neurosurgical practice and the significance of neurosurgical innovation will be a central theme. The “Digital Fluency in Neurosurgery Symposium” with Drs. [Sam Browd](#) and [Dan Donoho](#) will open the Annual Meeting on the morning of the first day, followed by the “Transforming Neurosurgery through Technology: Innovation Symposium” the next day.

In accordance with this year’s theme, “Neurosurgery Origins,” we realize the impact new technologies and their advanced capabilities can have on our lives and that neurosurgical practice can change our perspective on the origins of what we currently know, and what we are hoping to achieve in the future. When it comes to neurosurgical innovation, past experience shows that there are few limitations to what can be achieved as long as neurosurgical innovation continues to be promoted and pursued. Celebrating and reinforcing neurosurgical progress and cultivating an innovative mindset are an integral part of the vision of CNS, and one of the main objectives of the Annual Meeting. 📌



Garni Barkhoudarian, MD



Joseph Osorio, MD, PhD



Jeffrey Mullin, MD

2024 CNS Annual Meeting: Collaborative Special Symposia

The CNS has always maintained collaborative relationships with subspecialty and multidisciplinary organizations in fields pertaining to neurosurgery. Speakers in non-neurosurgical disciplines offer unique perspectives in the treatment of neurological diseases that often complement those of the neurosurgeon.

Two unique collaborations this year are with the Scoliosis Research Society (SRS) and the North American Skull Base Society (NASBS):

Spinal Deformity Primer for All Neurosurgeons: A CNS Collaboration with SRS

Course Directors: *Jeffrey Mullin, Joseph Osorio*

The CNS has developed a new partnership with the SRS to develop a symposium during the 2024 CNS Annual Meeting that will include a four-part session that covers topics of sagittal plane alignment, coronal plane alignment, cervical deformity, and complications. This unique offering will include lectures and interactive case discussions with faculty from the SRS who are orthopedic surgeons and neurosurgeons, renown for their spinal deformity experience. Faculty include leaders such as Christopher Ames, Munish Gupta and Chris Shaffrey. It is our thought that this collaborative educational series highlighting the overlap in clinical management of complex spine patients we encounter in our practice will be greatly beneficial to all.



Greatest Surgical Challenges in the Cerebellopontine Angle, Petrous Apex and Petroclival Fissure: A CNS/NASBS Special Symposium

Course Directors: *Maria Peris-Celda and Siviero Agazzi*

Continuing the collaboration between the NASBS and the CNS, we are excited to offer this special symposium, which will explore all aspects of the lateral skull-base. A multidisciplinary faculty of world experts in

the field will do a deep dive into this complex field, evaluating surgical techniques ranging from traditional lateral approaches to more recent endoscopic endonasal concepts. Challenging cases, video representations, and surgical debates will keep the audience piqued throughout this increasingly popular session. The audience will also learn about proper pre-operative work-up, medical management, radiation therapy, and complication avoidance for these patients. Don't miss a session that should appeal to any surgeon performing skull-base tumor operations. 📌



Edjah K. Nduom, MD

2024 CNS Annual Meeting: Weekend Symposia and Seminar Highlights

Throughout the pages of this issue of *Congress Quarterly* you will find information about many of the standout offerings available at the 2024 Congress of Neurological Surgeons Annual Meeting in Houston, Texas. If you are not accustomed to coming in early for the weekend symposia, I encourage you to carve out time this year to do so, as we have an amazing lineup planned. Over the course of the weekend, there will be 4- and 8-hour symposia diving into numerous topics of interest to practice and academic based neurosurgeons and those in training. Many of the symposia can be purchased as full day bundles at a discount. Below, you will find a few highlights from a stellar mix of old favorites and brand new symposia to consider.

Weekend Symposia Highlights: The Neurosurgical Career

There will be several symposia focused on career navigation relevant to those at various stages of their career:

- For 2024, the [Practical Neurosurgery Symposium will return with the theme "Navigating Neurosurgery Beyond Academia: Strategies for Success in Practice"](#). This symposium was designed by our Practice Based Neurosurgery Committee and is directly relevant for those in practice or trainees interested in pursuing such a career. This symposium will feature renowned faculty and address key topics such as transitioning to practice, balancing research, and engaging with the Council of State Neurosurgical Societies (CSNS). For those with a cerebrovascular or tumor focus, there will be information about creating a subspecialized practice outside of an academic center. This seminar would be a great way to ease into the meeting, immediately before the first General Scientific Session and Opening Reception Sunday evening.
- Returning for 2024, the [Swimming with the Sharks Symposium](#) promises to feature some of the biggest names in neurosurgery and the insights they have on a successful career. This symposium tends to be "standing room only", so you will want to register early and secure your place!
- The [Leading the Pack Symposium](#) will give attendees the opportunity and convenience to experience content from the groundbreaking CNS Leadership Institute while at the Annual Meeting. The Leadership Institute is as dynamic as the study of "leadership", and so there will



definitely be something new to learn, even for those who may have participated in the past. This symposium may be the inspiration you need to jump back into your leadership journey in earnest.

- New for 2024, the [Essentials for a Rewarding Neurosurgical Career Course](#), previously a stand-alone course, will be featured as a symposium in a format optimized for the CNS Annual Meeting. Due to the course's tremendous success and in-demand content we are thrilled to offer it at the Annual Meeting for the first time in 2024! Topics covered will include those relevant to the "business of neurosurgery" and strategies for forging a lasting, successful career. Small group sessions and panels will provide opportunities to engage with faculty featuring "giants of neurosurgery" who have devoted their careers to mentorship. The information discussed in this symposium will be relevant to those in community practice, academic practice, military practice and other governmental neurosurgical positions.
- As usual, our colleagues from Women in Neurosurgery (WINS) will be providing amazing content relevant to all neurosurgeons with the [Medical Education/Women in Neurosurgery Symposia Bundle](#) comprised of two sessions, "Maximizing your Neurosurgical Employment Opportunities" and "Harnessing the Power of the Media to Cultivate a Parallel Career and Augment Your Practice". "Maximizing your Neurosurgical Employment Opportunities" will be



EXPLORING Neurosurgery Origins

particularly relevant for those trainees in the midst of a job search. During this symposium, attendees will receive targeted advice from chairpersons, program directors, and recruiters. “Harnessing the Power of the Media to Cultivate a Parallel Career and Augment Your Practice” is an exciting new symposium, where learners will be exposed to talented neurosurgeons who have mastered the art of sharing their stories with the world in different ways, from TikTok to network news.

Weekend Symposia Bundles: Subspecialty Content

As always, there will be several bundles and individual symposia focused on topics relevant to those within the subspecialties of neurosurgery:

- The **Spine and Neurotrauma Bundle** will feature two symposia: “Comprehensive Management of Spinal Trauma” and “Neurotrauma in Combat, Disaster, and Other Austere Environments,” which will provide lessons taken from some of the most challenging healthcare environments that exist, but relevant to all those in practice.
- The **Cerebrovascular Bundle**, or “Stroke Symposium,” is divided into two sessions: one focused on ischemic disease and the other on hemorrhagic disease.
- The **Tumor Bundle** will feature two symposia based on the ever-popular Brain Tumor Update with new faculty and concepts to master. Symposia will focus on the management of benign and malignant tumors alike.
- The **Spine Bundle** will focus on approaches to spinal surgery, including lateral approaches and advanced minimally invasive surgery. Related symposia on Saturday, September 28 that may be of interest include the pediatric focused “Treating Complex Cervical Spine Disease in the Growing Spine Symposium” and “Peripheral Nerve Surgery: Evaluation and Common Surgical Exposure Symposium”.
- The **Stereotactic and Functional Bundle** includes symposia addressing practical approaches to epilepsy surgery for patients of all ages and movement disorder surgery.
- For interested members of the CSNS, the **CSNS Bundle** will address topics of great importance to the future socioeconomic health of our specialty including quality, wellness, and burnout.



Luncheon and Dinner Seminars

If you are unable to make it to Houston in time for the weekend symposia, our luncheon and dinner seminars scheduled throughout the week are similarly diverse and cover content relevant to each of the subspecialties within neurosurgery. These seminars can also add additional CME value to your meeting so please review the preliminary program and consider attending one or more during your time on-site. Of particular note is the “Career, Kids, Loss, and Chaos: Managing Neurosurgery and Life” luncheon seminar planned for Monday, September, 30. Reserve some time for this seminar and get your ticket early, as this has the potential to be a life-changing course. This seminar will be the perfect book-end to Dr. Khalessi’s 2024 Presidential Address and Magic Johnson’s lecture as the 2024 Walter E. Dandy Orator, both of which will conclude shortly before. ❏

Head to the registration page and add your courses today!



Khoi D. Than, MD



Edjah K. Nduom, MD

Section and Case-Based Sessions



The Congress of Neurological Surgeons 2024 Scientific Program Committee has created a robust slate of scientific and educational content for neurosurgeons of all subspecialties. Here are some of the highlights of the Section and Case-Based Sessions to look forward to this fall in Houston, Texas. Of note, all Section Sessions will include presentation of the top abstracts submitted to each section.

Cerebrovascular (CV)

The Monday CV Section Session, entitled “Beyond Clips and Coils,” will focus on the use of aspirin to treat aneurysms. The Drake Lecture will also take place during this session. On Tuesday, the session on “Emerging Science and Challenging Cases” will provide updates on important trials as well as the Hopkins Lecture.

Monday’s Case-Based Session on “Implementing Minimally Invasive ICH Evacuation into Your Practice” will be useful to all neurosurgeons who take call, as the session will go over the who, how, what, and when of this surgical procedure. Tuesday’s session

is a joint production with the Pediatrics Section entitled “Cavernous Malformations: What does the Modern Data Show?” The latest knowledge on cavernoma natural history, surgical treatment, and radiation treatment will be discussed in detail.

Council of State Neurosurgical Societies (CSNS)

The CSNS Section Sessions will provide valuable education beyond the realm of patient care per se. Monday’s session will cover advocacy and value with extraordinary panels on “Voices of Neurosurgeons in Washington, The State House, and on Social Media” and “Asking Your Worth.” Tuesday’s Section Session explores “Clinical Leadership in Neurosurgery” with numerous esteemed faculty who hold departmental and system-wide leadership roles. Meanwhile, the CSNS Case-Based Sessions will delve into “Mistakes in Spine Coding: How to Stay out of Trouble” on Monday and “Medical Malpractice Expert Testimony Do’s and Don’t’s” on Tuesday—topics that are extremely useful for all neurosurgeons.

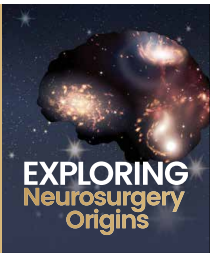
Pain

The Pain Section Session on Monday will explore “The Future of Neuromodulation” with exciting lectures on occipital nerve stimulation and spinal cord stimulation for low back pain and diabetic neuropathy. The Case-Based Session that day will cover “Lesioning for Pain” and include topics such as focused ultrasound, laser interstitial thermal therapy, and punctate midline myelotomy.

Pediatrics

The Pediatrics Section has organized outstanding sessions that encompass the essence of caring for children with neurosurgical diseases. Monday’s session is entitled “Clinical Practice Guidelines—How Are They Made? What Do They Show? Why Should I Care?” while Tuesday’s is “The Soul of Pediatric Neurosurgery: striving for meaning and purpose with mentoring, team building, wellness, and hospitality.”

The Pediatrics Case-Based Sessions on Monday will cover Chiari Malformation, with intriguing lectures including “Cervical Fusion for Chiari” and “Posterior Vault Distraction for Chiari.” As described above, Tuesday’s Case-Based Session is a joint production with the CV Section entitled “Cavernous Malformations: What does the Modern Data Show?”



Peripheral Nerve

The Peripheral Nerve Section has prepared a video session for its session on Monday: “Pearls in Peripheral Nerve Surgery.” Here, masters in the field will show how they surgically treat conditions including carpal tunnel syndrome, cubital tunnel syndrome, and meralgia paresthetica. Later that day, the Case-Based Session will cover reconstructive strategies, specifically nerve transfer, for brachial plexus stretch injury.

Spine

The Spine Section has created a great program covering the hottest topics in spine surgery. Monday’s Section Session is an “Update on Minimally Invasive and Endoscopic Spine Surgery,” with lectures on endoscopy, MIS deformity, and implant technology. Tuesday’s Section Session is an exploration of “Disparities in Spine Care and Education,” where attendees will learn about both domestic and international challenges in providing care to spine patients, the future of educating trainees, and an update on registries in spine surgery.

The Spine Case-Based Sessions will include a deep dive into central cord injury on Monday, with topics including current knowledge of pathophysiology, surgical approach and timing, and how age and frailty impact decision making. Tuesday will include what will surely be entertaining debates on the topics of the management of radiculopathy in the setting of deformity, awake spine surgery, lumbar degenerative scoliosis, and management of the pelvis in long-segment deformity surgery.

Stereotactic and Functional

The Stereotactic and Functional Section Sessions explore the latest topics for neurosurgeons in this space. Monday’s session on “Advanced High-Density Electrode Recordings of the Human Brain” will include lectures on NeuroPixels and thin film arrays. Tuesday’s session then covers “Cerebral Modulation for Pain.” The Case-Based

Sessions will include “Focused Ultrasound: Challenging Cases” on Monday, where different disease processes discussed will include Parkinson’s disease, addiction, and newer indications. Tuesday’s Case-Based Session on “Ethical Dilemmas in Neuromodulation” will cover topics including artificial intelligence and Neuralink.

Trauma

Monday’s Trauma Section Session on “Neuromodulation in Neurotrauma” will bring together representatives from multiple sections as the topics of modulation for traumatic brain injury, spinal cord injury, and peripheral nerve injury are discussed. Tuesday’s session, the “Penetrating Head Injury Symposium,” will include a review of the latest guidelines as well as perspectives from the military and from Brazil.

The Case-Based Sessions will be valuable to all neurosurgeons. Monday’s session is entitled “Crossfire Debates in Neurotrauma,” with topics including when to withdraw care, unilateral vs. bifrontal craniotomy for elevated intracranial pressure, and mean arterial pressure vs. spinal cord perfusion pressure in spinal cord injury. Tuesday’s Trauma Case-Based Session is entitled “Neurotrauma as a Team Sport: Case-Based Discussion in Complex Neurotrauma Patients.”

Tumor

The Tumor Section content covers the latest trends in neurosurgical oncology. Monday’s Section Session will explore the “Evolution of Surgical Management of Brain Cancers in the Age of Targeted Molecular Therapies,” where lectures will cover both intracranial and spinal oncology. Tuesday’s Section Session is called “Focused Ultrasound and Intraoperative Photodynamic Therapy During Brain Tumor Resection.” The Case-Based Sessions will include discussions on “Multimodal Therapy for Brain Metastasis” on Monday and “Complex Skull Base Approaches” on Tuesday. This latter session will include the wide range of skull base approaches including minimally invasive, endoscopic, open, and combined. ■

The subspecialty sessions at the 2024 CNS Annual Meeting
have a ton of content for everyone.
We look forward to seeing you in Houston!



Tiffany R. Hodges, MD



Maryam Rahman, MD



Kunal Vakharia, MD

Advancing Diversity and Inclusion in Neurosurgery: **A Path Forward**

In the ever-evolving landscape of neurosurgery, diversity and inclusion have emerged as critical pillars shaping the future of our field. Since its establishment in 2021, the CNS Diversity, Equity, and Inclusion (DEI) Committee has been at the forefront of these efforts. The committee has played a pivotal role in shaping subcommittees and engaging diverse speakers across age, race, gender, and more. By providing feedback and recommendations on course content and speaker selection, we are ensuring that our programs reflect the diversity of our field.

This commitment to inclusivity extends beyond our annual meetings, as we continue to advocate for diversity in all aspects of neurosurgery, from training programs to academic institutions. Notably, we are seeing a growing involvement of younger faculty, diverse ethnicities, and individuals from various backgrounds, signaling a promising shift towards a more inclusive and representative neurosurgical community. As we reflect on our past achievements and look towards the future, it is evident that our commitment to diversity and inclusion continues to drive impactful change.

One of our proudest achievements lies in the success of the CNS Foundation's Pathway to Neurosurgery initiative. This program, now in its fourth year, has been instrumental in inspiring and mentoring the next generation of neurosurgeons. Building upon last year's success, we are thrilled to announce our collaboration with Breakthrough Houston once again on September 30, 2024. The overwhelming interest from students, faculty, and sponsors generated by this initiative underscores the importance of providing opportunities for aspiring neurosurgeons from underrepresented backgrounds, and we are eager to expand our reach further.

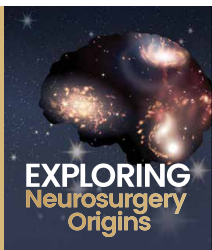
In addition to our efforts with the Pathway to Neurosurgery initiative, the CNS DEI Committee is proud to highlight the fantastic representation among diverse groups within our field. Through partnerships with Women in Neurosurgery (WINS), the American Society of Black Neurosurgeons (ASBN), and the Neurological Surgeons Pride Alliance at the CNS Annual Meeting, we have celebrated and amplified the voices of neurosurgeons from all walks of life. Specifically, there will be a special symposium hosted by WINS during the CNS Annual Meeting entitled "LGBTQIA+ and Women in Neurosurgery". This symposium will address the challenges LGBTQIA+ neurosurgeons face and strategies for fostering a diverse neurosurgical community.



Moreover, ASBN will introduce a new service initiative during the CNS Annual Meeting, in which ASBN members will visit two underserved schools in Houston. By championing diversity in leadership, research, and clinical practice, the CNS DEI Committee is proud to foster a culture of inclusivity that enriches the fabric of neurosurgery.

As we look ahead, our mission remains clear: to inspire, mentor, and empower the next generation of neurosurgeons while fostering a culture of diversity and inclusion within our community. We invite all CNS members to join us in this effort as we work towards a future where every neurosurgeon feels valued and supported.

We extend our gratitude to all who have volunteered their time and effort to advance our mission. Your dedication and passion are the driving force behind our success. As we prepare to convene at the 2024 CNS Annual Meeting, we look forward to celebrating our achievements and charting a course for the future of diversity and inclusion in neurosurgery. 📌



Nicole Bentley, MD

2024 CNS Annual Meeting: Medical Student Programming

The 2024 CNS Annual Meeting theme, “Neurosurgery Origins,” will highlight the beginnings and evolution of our field. As busy students and trainees, it can be difficult to stop and appreciate how our field began and honor the leaders who helped make our current neurosurgical landscape possible. The Annual Meeting will be an important time to make these connections and to ensure that we continue to push the field forward toward the goal of improving patient care. Much of this inspiration and commitment begins with medical students who become tomorrow’s leaders and innovators, and the CNS strives to provide unparalleled support for its earliest trainees.


A key pillar of the CNS mission is education across the training spectrum, from medical students to senior neurosurgeons. The CNS Annual Meeting provides an excellent opportunity to access our educational and training content, meet with experts in the field and connect with peers. Recognizing the importance of early exposure to neurosurgery, the CNS has recently increased its educational programming for medical students. At the 2023 CNS Annual Meeting, we hosted the inaugural Medical Student Symposium. This event was unique among conference offerings, in that medical students provided both the ideas for content and presented their work during the sessions. Importantly, the information exchanged was medical student-driven, ensuring that relevant topics were addressed. Among the parallel sessions, topics included machine learning, global neurosurgery, data driven outcomes, health systems science, health equity, scholarship and clinical work balance, and brand building.

Given the success of the 2023 Medical Student Symposium, the 2024 CNS Annual Meeting will feature medical student-curated and led content. Session Chairs will solicit applications and ideas for topics, which can include issues or barriers medical student trainees face or academic/scientific topics of relevance. Following review, Chairs will call for speakers. Among the key issues affecting medical students, ideas for content will be encouraged that promote increasing diversity and inclusivity among trainees, navigating the residency match process, especially as an underrepresented minority or one without a home program, and balancing the challenges of didactic learning, hands-on training, and academic pursuits. The CNS also promotes non-traditional learning formats and audience engagement. As an example, one of the 2023 presentations included



real-time coding for health systems data. This forward-thinking diverse method of engagement reflects the CNS commitment to innovation and scientific exchange.

Several events, including the Medical Student Town Hall and Opening Reception, provide opportunities to gain knowledge and establish connections with peers. Many students use the Annual Meeting to schedule in-person meetings with prospective program directors or residents. The CNS Resident Committee also supports the Medical Student Sub-Committee. Medical students are invited to join the on-site CNS Resident Committee meeting to engage with current residents, learn about current initiatives, and establish relationships with CNS leadership.

For medical students, the 2024 CNS Annual Meeting is an important venue for their own “neurosurgery origin”. Our field continues to attract the brightest minds in medicine and surgery, and many of us seasoned neurosurgeons recall an Annual Meeting experience that solidified our commitment to this exemplary field. Our goal for medical student content is to foster increased knowledge about neurosurgery so that upon the meeting’s end, students are better prepared to navigate the decision to pursue the specialty. We hope that students will build relationships that can be further developed and lead to a path toward neurosurgery. The CNS is dedicated to providing for the educational needs of prospective trainees and we hope that the Annual Meeting can be a first stop on that journey. 



Peter Nakaji, MD

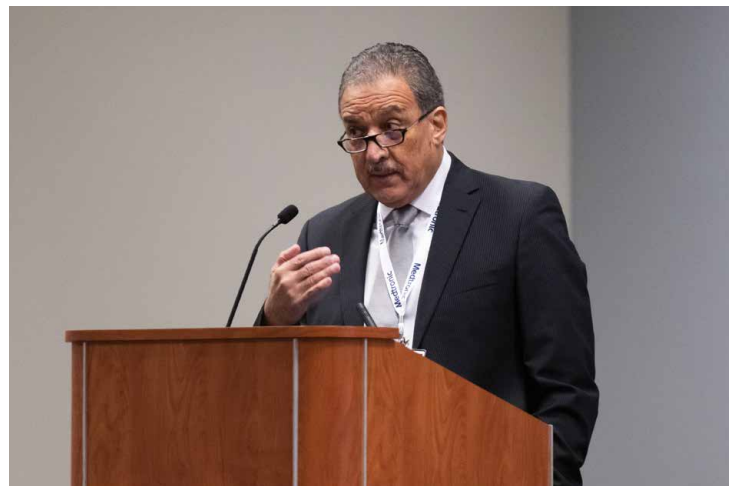


Brian Nahed, MD

International Highlights at the CNS Annual Meeting and Meeting of the Americas 2024


The CNS Annual Meeting in Houston this September will continue the tradition of strong international engagement, welcoming delegates from our lead partner societies the Japanese Congress of Neurological Surgeons (JCNS), the Neurological Society of India (NSI), and the Brazilian society, Sociedade Brasileira de Neurocirurgia, (SBN).

In a follow-up to last year's highly successful Latin-American focused Meeting of the Americas, we will again hold a full-day symposium on Saturday before the main meeting. Highly appropriate for the Texas venue, the meeting which will focus on the neurosurgical contributions of nations of the North and South American continents including Mexico and Central America, Brazil, and especially the Spanish-speaking community, as well as Canada. As with last year, the speakers come from a wide variety of backgrounds and levels of practice, addressing unique challenges faced in advancing neurosurgery in the Latin American community, ranging from those in leading centers all the way to those in resource-challenged environments. The Meeting of the Americas will be predominantly conducted in English, though the occasional foray into Spanish and Brazilian Portuguese can be expected. The format remains short with mostly 9-10 minute rapid-fire presentations covering the full range of neurosurgical topics.

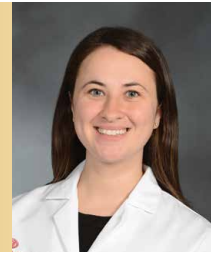
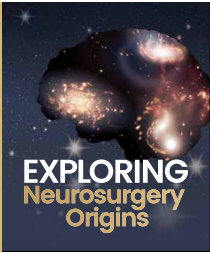


Attendees to the main meeting can look forward to seeing contributions from international participants including Presidential Addresses from the Japanese, Indian, and Brazilian society leadership. The talks from last year's neurosurgical faculty shed light on the challenges and success they each faced, which were very applicable to our CNS audience. In addition, the CNS program will have many international experts from around the globe; over 79 countries are expected to be represented, including the US.

This year's CNS International Reception will be held at the Altitude Pool Deck at the Marriott Marquis Houston from 5:00-6:30 pm on Saturday, September 28.

All registered CNS Foundation donors and awardees, residents, international attendees, and their registered guests are invited to attend. Every year this reception has growing energy. Join us and be a part of the celebration! 





Alexandra Giantini
Larsen, MD



Douglas Kondziolka,
MD, MSc


Neurosurgery Publications: Educational Series on Manuscript Preparation

Scholarly pursuit is a core tenet in the field of neurosurgery. From the earliest days of college and medical school, students are immersed in rich academic settings such as the laboratory and clinical practice of physicians. In medical school, there is an unspoken pressure that academic productivity, which in the minds of many is measured by the number of publications listed on a resume, is vital to performing well in the neurosurgery match.¹ A recent study quantified the increase in average pre-residency publications for neurosurgery applicants from 2.5 in 2011 to 6.5 in 2018; Top 20 and Top 40 U.S. medical school graduates, international medical graduations, PhD-holders, and men had higher pre-residency publication counts overall.¹ Significantly higher pre-residency publication counts were seen in applicants who matched into residency programs with highly ranked affiliated hospitals. In addition, a study from Vanderbilt by Kistka et al. reported an increase in the percentage of applications with publication misrepresentations from 33% in 2006 to 45% in 2012.² An unfortunate detail of the increase in pre-residency publication counts is the decrease in peer-reviewed manuscripts listed on an application. A 2019 study in the *Journal of Neurosurgery*, found that the increase in total research products in neurosurgery applicants was driven predominantly by an increase

in non-indexed research, including book chapters, presentations, and abstracts, rather than peer-reviewed publications.^{3,4} While this is likely multifactorial, it speaks to a need to focus on the transition from abstract or presentation to peer-reviewed manuscript. For many medical students or residents, this may seem like a daunting task without the proper guidance and mentorship.

Many neurosurgeons and neurosurgeons-in-training have had the privilege to work with great scholars in the field due to close proximity to these thought leaders during training. Through this, there is an acknowledgement that words have power and the impact of sharing our work relies heavily on the way the work is conveyed. The importance of conveying clear messages with a keen eye for attention to detail cannot be overstated. Mentorship in scientific writing is crucial to the continuation of the neurosurgical body of literature that is composed of great advances in science and our field. **Neurosurgery Publications** feels that all should have access to knowledge and mentorship throughout manuscript preparation and scholarly publication.

On that note, **Neurosurgery Publications** has created a podcast series that will focus on preparation of a scientific manuscript and the academic publishing process. The target audience for this series will be medical students and residents who aim to better understand scholarly publishing, and are searching for guidance on preparation of a peer-reviewed manuscript for publication. The majority of episodes will have an expert in the field share knowledge and guidance on the topic. The components of the podcast series will include: manuscript types, manuscript preparation, crafting a letter to the editor, controversies in publishing, and reflections on a career in academic publishing.

We hope this series will serve as a helpful guide to those interested in scholarly research and helps establish a positive experience in neurosurgical research and publishing that sets a tone for a lifelong career of scientific exploration. 

Stay tuned for information about the launch of this series.

Alexandra Giantini Larsen, MD
Deputy Resident Publications Fellow, Neurosurgery Publications

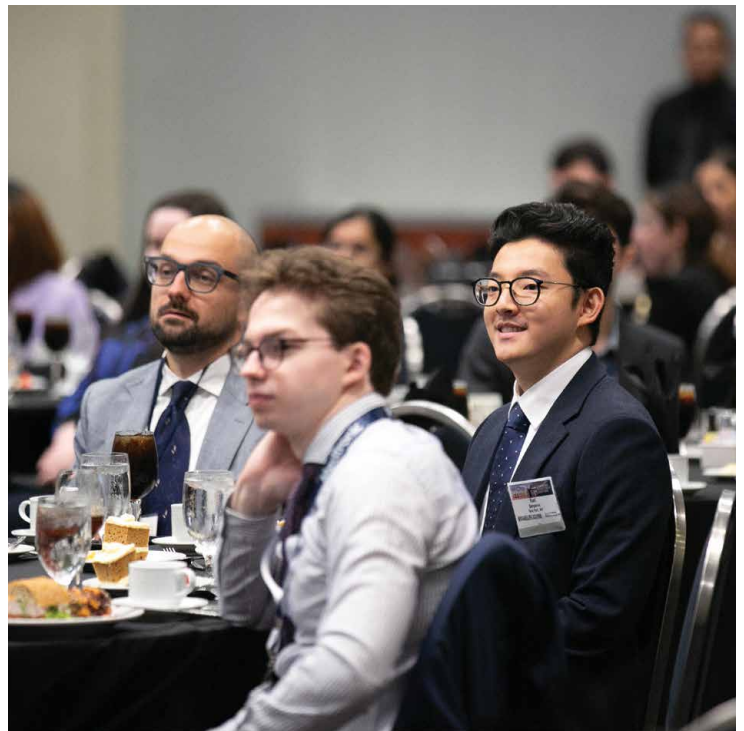
WE HOPE THIS PODCAST SERIES WILL SERVE AS A HELPFUL GUIDE TO THOSE INTERESTED IN SCHOLARLY RESEARCH AND HELP ESTABLISH A POSITIVE EXPERIENCE IN NEUROSURGICAL RESEARCH AND PUBLISHING THAT SETS A TONE FOR A LIFELONG CAREER OF SCIENTIFIC EXPLORATION.

We are delighted with our resident fellow program started by Editor-in-Chief Emeritus, **Dr. Nelson Oyesiku**. Each year, 10-15 residents from across the United States, usually at the PGY-4 to 6 levels, apply for the position and provide a vision for what they want to achieve. During this year we selected two for the position. **Dr. Giantini Larsen**, our Deputy Resident Publications Fellow, aimed to create a podcast series on scientific writing which she has described above. Certainly we all needed to learn at some point! As I have described in recent Editor's Messages, I was not a natural writer when I entered residency but I was mentored well. Importantly, I was able to define topics that were of interest to others, and suitable for publication. I tried to write at least one report per rotation and was able to achieve this. As such, my early output represented a wide array of topics and was published in an array of journals as diverse as the neurosurgical, neurotrauma, family medicine, neurology, and neuropathology literatures. So step one is deciding on what to study. It is best if the topic is not only interesting but enjoyable to you personally. A good paper will often mean presentation at one or more conferences, which means the opportunity to travel!

As she notes, the number of authors per paper has certainly increased over the past two decades. Perhaps that stems from many factors: team based writing and inclusion, multicenter studies, and more student authors who now see publication metrics as a path towards residency in an area where step 1 board scores have been eliminated in the United States at least.

A report well-suited for publication not only has a great topic, but is well-written and properly submitted for review. To that end, our publisher, Wolters Kluwer, is currently evaluating software that will help authors check and prepare their papers for proper submission. Of course, there is much going on beyond the realm of generative language models. ❏

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

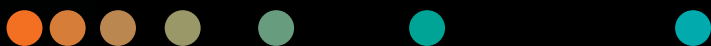


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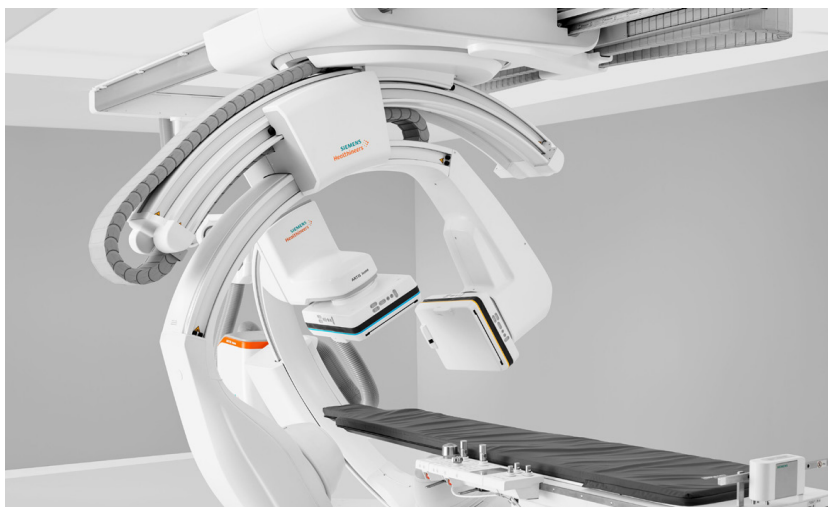
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ARTIS icono biplane

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Twin Spin allows you to perform 3D acquisitions without the need to park the lateral plane. This can make procedures faster and safer due to less system movement, and it facilitates the utilization of *syngo DynaCT*.



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Theresa Williamson,
MD, MPH

Congress of Neurological Surgeons Wellness Activities

Wellness took center stage at the 2023 CNS Annual Meeting with a new partnership with Lululemon, the CNS 5K, and new content focused on the ways in which neurosurgeons cope with the stress of their work. Dr. Xiadong Lin from Columbia University, expert on how high performers deal with failure, took center stage at the General Scientific Session addressing the stressors neurosurgeons face and how neurosurgeons emotionally cope. The CSNS hosted a symposium highlighting the burnout activities of many programs around the country.

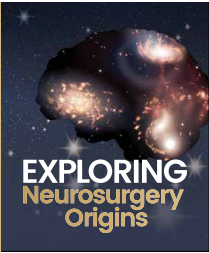
Following the momentum from the 2023 Annual Meeting, the CNS Wellness Committee has engaged several new members and worked on a few key themes: **1.** Identifying successful wellness strategies and providing a platform for their implementation and feedback, **2.** Community building in wellness, and **3.** Advocacy. To the first point, collaborations with Thomas Jefferson University have led to an interesting study of how neurosurgeons manage complications. This study will serve as a foundation for programs to better understand ways in which they can better support their surgeons through the natural up's and down's of a high-risk practice. A study led by Beth Israel Deaconess demonstrated the effect of administrative burdens on neurosurgeon well-being. The group unites on program ideas regarding these important survey findings as well as bringing their own programs' successes and failures. The CNS Wellness committee is strengthening its relationship with the CSNS to advocate for change around administrative burdens for neurosurgeons and efforts to improve neurosurgeon wellness.



The CNS Wellness Committee builds a community where everyone feels welcome and creates a space where neurosurgeons can focus on their physical, mental, and emotional health. Much of this activity stems from the CNS Annual Meeting. This year the CNS Wellness Committee is proud to announce a continued collaboration with Lululemon who will cohost the 5K in partnership with local Houston running partners. The 5k will have two synchronous runs and an asynchronous option. Expect community, wellness leaders to hype up the crowd, and post-run celebration! Of course, look out for the leaderboard for some friendly competition. Additionally, the CNS will host its first ever Wellness Retreat as a pre-meeting symposium. Recognizing that true wellness and healing need space and dedication, this symposium will take place at the Post Oak Hotel from Friday evening until Sunday morning. This retreat will feature a full complement of wellness activities including yoga, stretching, self-care, writing, and community building. It will be led by renown wellness expert, Pilin Anice. Sound bites from this experience will be available during breaks in the CNS Xperience lounge during the Annual Meeting.

The CNS continues to elevate wellness to center stage and is your home for meaningful and collaborative activities aimed at improving neurosurgeon quality of life and well-being. Please join us in celebrating this important subject by participating in one or more of our wellness centered activities in Houston. [x](#)





Garni Barkhoudarian, MD

The CNS Xperience Lounge: A Place to Relax, Interact, and Learn

The CNS Xperience Lounge is centrally located within the Exhibit Hall, providing a unique respite during the CNS Annual Meeting, where our members can relax, network, and learn unique aspects of neurosurgery.

Active programming during the breaks will be featured on the two stages of the CNS Xperience Lounge between which will be the popular CNS Baristas, providing complementary energy boosts to attendees. Plenty of space is available to meet with colleagues, chat with industry representatives, or just take a load off and charge your phone.

A highlight at the CNS Annual Meeting has always been the Live Surgery demonstrations during the morning and afternoon breaks. These demonstrations allow attendees to watch experts in the field performing

operations at their home institutions in real time, with live commentary and opportunities for dialogue with the audience. The operations span a multitude of subspecialties, applicable to all aspects of neurosurgery.

The second stage will feature the Art of Neurosurgery presentations given by expert medical illustrators describing the neuro-illustration process (see page 23). One can peruse the artwork from members on display at the adjacent booth. This stage will also feature mindfulness activities led by the CNS Wellness team, providing a well-deserved break during the bustle of the meeting.

Ultimately, the CNS Xperience lounge is a key hub during your time in Houston, offering plenty of space for relaxation, interaction, and education. ■



CNS Xperience Lounge Highlights

Activity	Date/Time	Location	Activity	Date/Time	Location
Honored Guest Meet & Greets	<ul style="list-style-type: none"> Monday, 9/30 9:40-10:10 am - Dr. Steven Giannotta Tuesday, 10/1 9:40-10:10 am - Dr. Henry Brem 	Member Service Lounge	Device Innovation Showcase	Tuesday, 10/1 1:50-2:50 pm	Presentation Stage 2
Live Surgery (Topics & Sponsors to be Announced)	<ul style="list-style-type: none"> Monday, 9/30 9:40-10:10 am 1:50-2:50 pm Tuesday, 10/1 9:40-10:10 am 1:50-2:50 pm Wednesday, 10/2 9:40-10:10 am 	Presentation Stage 1	Digital Posters, Latte & Cappucino Bar, CNS Member Services	<ul style="list-style-type: none"> Monday, 9/30 8:15 am-4:00 pm Tuesday, 10/1 8:15 am-3:00 pm Wednesday, 10/2 8:15 am-1:30 pm 	

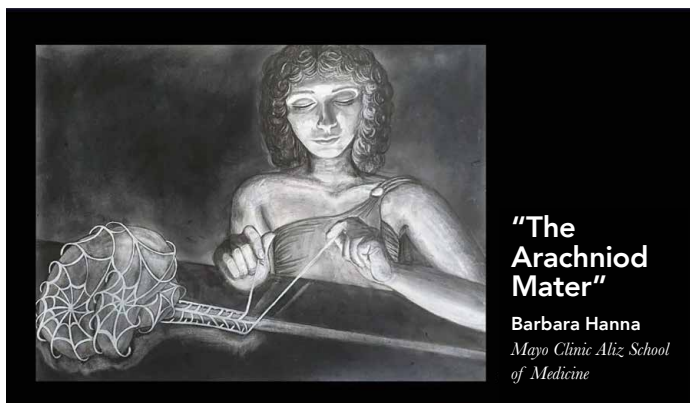
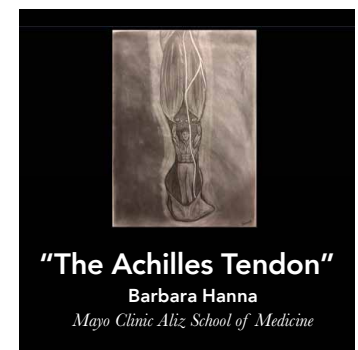
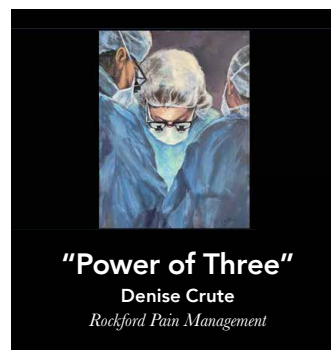
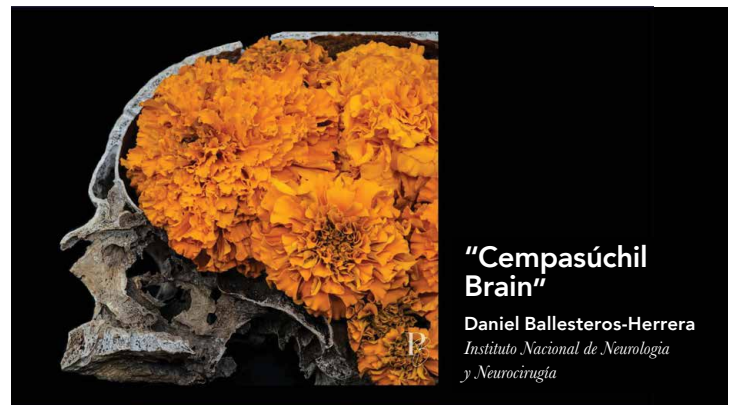


Lola B. Chambless, MD

The Art of Neurosurgery Expands in 2024

Last year, the CNS launched a new initiative at the 2023 Annual Meeting designed to highlight the relationship between neurosurgery and creativity in the visual arts. "The Art of Neurosurgery" will grow this year as we connect with more artists and illustrators interested in the intersection of these pursuits.

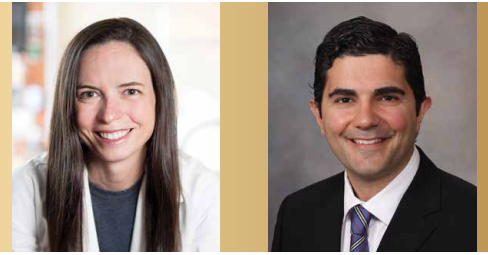
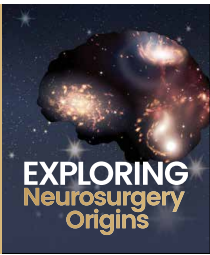
Master illustrators will be back to take our audience behind the scenes as they showcase the fascinating process of turning anatomy into illustrations that enhance our ability to learn surgical techniques and understand three dimensional relationships. New this year, we will partner with the Association of Medical Illustrators to help our attendees learn how to connect with professional illustrators for their own research or educational purposes. We will also explore the history of neurosurgical illustration through a gallery of historical pieces depicting the evolution of this craft since its origin in the days of Harvey Cushing.



Neurosurgeon-artists will also have the opportunity to participate again in 2024. This year, we are building a free-standing gallery in which we will hang selected work submitted by members of the CNS community. This space, adjacent to the CNS Xperience Lounge, will offer attendees a place to decompress and consider work designed to capture aspects of the field that we love. Look out for information about the gallery opening and for opportunities to talk to the artists about their work. Please consider submitting your own work at <https://www.cns.org/annualmeeting/program/call-for-art>. Submissions are welcome from anyone within the neurosurgical

community including students, trainees, nurses, APPs, researchers, surgeons, and others.

Each of us chooses to come to the CNS Annual Meeting for a variety of reasons including continued education, networking, and scientific advancement. Offerings like the CNS 5K, Wellness Programs, and Art of Neurosurgery engage our "right brain" to restore balance and inspire our passion for the field. Don't miss this one-of-a-kind opportunity to explore the creativity within neurosurgery. 📌



Lola B. Chambless, MD

Mohamad Bydon, MD

The CNS Exhibit Hall: A Meeting Point for Neurosurgical Innovation

The 2024 CNS Annual Meeting is focused on exploring the origins of modern neurosurgery. By improving our understanding of how neurosurgical innovation has shaped today's neurosurgical practice, we are positioning ourselves to better predict the future direction of neurosurgical advances, as well as their impact on neurosurgical patient care as we know it. While this year's Annual Meeting will be focused on novel advancements within neurosurgery, the canvas to be painted is anything but blank! From cutting-edge research, innovative thinking, and the exchange of ideas, previous CNS Annual Meetings have aimed to share neurosurgical knowledge and novel findings, as well as give members a glimpse into the bright future awaiting neurosurgery as novel scientific advancements continue to be made.

While the scientific sessions and symposia serve their purpose of sharing new research findings and expertise on clinically relevant pain points within neurosurgery, the CNS Annual Meeting owes many of its constructive activities and capabilities to the unique structure of the CNS Exhibit Hall. From the CNS Xperience Lounge to our Crossroads to Innovation program and our new skills challenge, the CNS offers so many valuable ways to experience the technologies exhibited in Houston.

More than 160 exhibitors will bring their neurosurgical instruments and equipment to display in the Exhibit Hall. To help participants synthesize this information, we are bringing back our Crossroads of Innovation program, where attendees can witness smaller-scale in-booth demonstrations relevant to specific neurosurgical subspecialties, as well as guided tours from neurosurgical peers. Sign up for these sessions according to your schedule. Attendees will have an option to pre-register for tracks through the Annual Meeting registration site. More information about participating companies and technologies will be available via the Annual Meeting mobile app and onsite signage.

This year, we are also excited to announce a fun, new way to experience the technologies in the Exhibit Hall with our new skills challenge, offered in collaboration with CNS industry partners. Our neurosurgical community will have the opportunity to showcase their various technical skills and compete for prizes. Throughout the Exhibit Hall floor points will be earned for completing in-booth skills challenges during open hall hours Monday through Wednesday. The top three points earners will receive a prize, and all participants will be entered into a raffle to earn additional prizes.



The CNS Xperience Lounge, located within the Exhibit Hall, allows for a rare close-up experience of novel neurosurgical techniques performed live in the surgical amphitheater. Live surgeries will be held on the main stage during each morning beverage break, while our second stage will host the Innovation Showcase presentations during the Tuesday afternoon beverage break. These presentations will feature groundbreaking technologies offered by our exhibitors. Specific techniques and technologies to be featured in both presentation formats will be announced via the Annual Meeting website, social media, and the mobile app as we get closer to the meeting. With the pace at which neurosurgical innovation moves, it is critical to stay up to date on novel neurosurgical techniques and key findings from the most impactful research in the field.

CNS staff, including staff from **Neurosurgery Publications**, will also be available in the Xperience Lounge to answer your product questions and show you how you can access the most recent advances in neurosurgery from the comfort of your own office!

Building strong collaborations and partnerships between academic institutions, as well as between academic institutions and industry, is vital to promoting neurosurgical innovation. Other than providing a hub for the sharing of knowledge and ideas, and for learning about the most recent updates in neurosurgical technology, the CNS Exhibit Hall offers an ideal space for establishing working relationships that can benefit neurosurgical practice and research. We invite you to join us at the 2024 CNS Annual Meeting for a unique opportunity to delve deeper into "Neurosurgery Origins", and to explore the future of neurosurgical innovation together! 



Congress of Neurological Surgeons

Thank You

The Congress of Neurological Surgeons gratefully acknowledges our Industry Allies Council Partners for their continued support.

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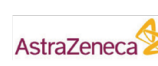
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FOUNDATION UPDATE



CNS Foundation Awards

The Congress of Neurosurgical Foundations is proud to announce the awardees selected for the 2024-25 programs. The Foundation continues its mission this year by supporting the training and impactful projects of 17 outstanding neurosurgeons from 8 countries.

The CNS Foundation has selected its winners for the 2024 awards cycle.

Observerships/Visitorships Programs

Established in 2018, the Foundation continues to grow its international observership and visitorship program, expanding with the addition of three international endovascular observerships for the 2025-26 cycle.

- **International Spine Observership at Duke University** (generously supported by Dr. Khoi and Heather Than as well as anonymous donation): **Simon Balogun, MD** - Obafemi Awolowo University Teaching Hospitals Complex, Nigeria
- **International Global Neurosurgery Observership at Massachusetts General Hospital/Harvard University** (generously supported by Stryker): **Gbetoho Fortune Gankpe, MD** - Centre National Hospitalier Universitaire Hubert Koutoukou Maga (CNHU HKM), Benin
- **International Brain Tumors Observership at Icahn School of Medicine at Mount Sinai** (generously supported by Medtronic as well as anonymous donation): **Noor ul-Huda Maria, MD** - Pakistan and **Eyerusalem Bergene, MD** - St Paul's Hospital Millennium Medical College, Ethiopia

- **International Tumor Observership at University of Miami** (generously supported by Dr. Overfield and Emvia Health): **Anahí Agustina Cilenzo, MD** - Dr. Clemente Álvarez Emergency Hospital, Argent and **Juan Ruiz, MD** - Hospital Rawson San Juan, Argentina
- **International Visitorship at Stanford University** (generously supported by Medtronic): **Silvia Veronica de los Santos Segura, MD** - Clinical Hospital. Montevideo, Uruguay
- **International Visitorship at Penn State University** (generously supported by Penumbra): **Thomas Megerrssa, MD** - Addis Ababa University/CHS, Ethiopia
- **International Visitorship at University of Pittsburgh Medical Center (UPMC)** (generously supported by the Joint Neurotrauma Section): **Henok Teshome Molla, MD** - Addis Ababa University/CHS, Ethiopia

Diversity, Equity, and Inclusion in Neurosurgery

Four novel programs continue for the 2024-25 cycle.

- **DEI Scholar** (generously supported by Medtronic): **Jean-Luc Kabangu, MD** - University of Kansas Medical Center
- **DEI Innovation Pilot Project** (generously supported by Stryker): **Debraj Mukherjee, MD** - Johns Hopkins University School of Medicine
- **DEI Impact** (generously supported by Stryker): **Arbaz Momin, MD** - Thomas Jefferson University
- **Future Women Leaders in Neurosurgery-International** (generously supported by anonymous donation): **Taise Mosso Ramos, MD** - Hospital das Clinicas UFMG, Cape Verde

- **Future Women Leaders in Neurosurgery - Domestic** (generously supported by anonymous donation): **Zarina S. Ali, MD** - University of Pennsylvania

Clinical Scientist Career Development

The Cerebrovascular Section continues its partnership with the CNS Foundation awarding its fifth and sixth Young Investigator's awards. The CNS and CNS Foundation continue their commitment to the NIH K12 program, ultimately supporting with the program with donations of \$1,400,000 through 2027.

- **Joint Cerebrovascular Section/CNSF Young Investigator Award** (generously supported by Joint Cerebrovascular Section): Awardees to be announced Summer 2024
- **NINDS/CNS Getch K12 Scholar Award** (generously supported by the Congress of Neurological Surgeons): Awardees to be announced Summer 2024

3 New International Observerships Announced

As mentioned, the CNS Foundation is excited to announce the addition of three new International Endovascular Observerships starting in 2025. Beth Israel Deaconess Medical Center/Harvard Medical School, University of California, Davis Health, and University of Utah Health will serve as host/mentor institutions for these three month in-person endovascular-focused observerships. These observerships are generously supported by Microvention. Applications for these observerships open this fall. For more information on the awards process, please visit foundation.cns.org and watch for announcements in the CNS Weekly, Instagram (CNS_Update) and Twitter (@CNS_Update). 📌

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INSIDE THE CNS



Washington Committee Report



Russell R. Lonser, MD
Chair, Washington
Committee

Congress Passes Legislation Partially Reversing 3.37% Medicare Pay Cut

Congress passed the Consolidated Appropriations Act, 2024 ([H.R. 4366](#)), partially reversing the 3.37% Medicare physician payment cut that went into effect on January 1. President **Joseph R. Biden** signed the bill into law. The legislation reduces the cut by half, providing a 1.68% increase in current payment levels. The new payment rate took effect on March 9 and will continue through the remainder of 2024.

The legislation also extended incentive payments for physicians participating in certain advanced alternative payment models, providing eligible participants with an additional 1.88% bonus payment. In a statement to [MedPage Today](#), **Katie O. Orrico**, Esq., Senior Vice President for Health Policy and Advocacy in the Washington Office, stated:

“When coupled with medical inflation and ongoing sequestration cuts, physicians are now experiencing a staggering 10% Medicare payment cut in 2024. While we appreciate the additional resources Congress is providing, it is a drop in the ocean of need. This discrepancy highlights the unique and untenable position of physicians, who are the only Medicare providers without an inflationary-based payment update, emphasizing the critical necessity for long-term payment reform that genuinely reflects the economic realities faced by physicians who are the foundation of patient care in our health care system.”

Subsequently, the Centers for Medicare & Medicaid Services updated its [website](#) to reflect the new Medicare Physician Payment Schedule conversion factor. The 2024 conversion factor for January 1 through March 8 was \$32.74. The updated conversion factor for the remainder of the year is \$33.2875.

Neurosurgeons are encouraged to go to the CNS/AANS Advocacy Action Center and urge your representatives to co-sponsor [H.R. 2474](#): the Strengthening Medicare for Patients and Providers Act. This legislation would provide physicians with an annual Medicare physician payment update based on the Medicare economic index. Click [here](#) to send a letter to your elected officials.

CNS and AANS Recommend Prior Authorization Reforms for ERISA Plans

On March 15, the CNS and the AANS joined the Alliance of Specialty Medicine in responding to the House Committee on Education and Workforce Committee’s Request for Information on ways to improve the Employee Retirement Income Security Act (ERISA). In the comment letter, the groups made several recommendations to ensure physicians can focus on providing high-

quality patient care rather than complying with burdensome utilization management requirements, such as prior authorization. Visit the online issue to read the Alliance of Specialty Medicine’s comments.

Neurosurgery Urges Permanent Telehealth Expansion

On February 22, the CNS and the AANS joined more than 130 organizations in sending a [letter](#) to Senate Majority Leader **Charles Schumer** (D-NY), Senate Minority Leader **Mitch McConnell** (R-KY), House Speaker **Mike Johnson** (R-LA), and House Minority Leader **Hakeem Jeffries** (D-NY) urging Congress to make permanent telehealth flexibilities implemented during the COVID-19 pandemic before they sunset on December 31.

U.S. House Approves Gabriella Miller Kids First Research Act 2.0 Legislation

On March 5, the U.S. House of Representatives passed the Gabriella Miller Kids First Research Act 2.0 ([H.R. 3391](#)) by a [vote](#) of 384 to 4. Introduced by Rep. **Jennifer Wexton** (D-VA), this legislation would expand the available funds to support research on pediatric diseases and disorders at the National Institutes of Health (NIH). In October 2023, companion legislation, [S. 1624](#), passed the Senate Committee on Health, Education, Labor and Pensions.

The CNS and the AANS have supported the [Senate](#) and [House](#) bills.

CNS and AANS Support GME Funding Legislation

On March 13, the CNS, AANS, and Society of Neurological Surgeons joined the Graduate Medical Education (GME) Advocacy Coalition in supporting the Substance Use Disorder Workforce Act ([H.R. 7050](#)). This bipartisan legislation would provide Medicare funding for 1,000 new GME positions over five years in hospitals with accredited residency programs in addiction medicine, addiction

psychiatry, or pain medicine, and their prerequisite programs. Click [here](#) to read the GME Advocacy Coalition's letter.

House Committee Advances Multiple Health Care Bills

On March 20, the House Committee on Energy and Commerce approved multiple health care bills, including:

- [H.R. 7208](#), the Traumatic Brain Injury (TBI) Reauthorization Act, reauthorizing the TBI Program at \$5 million a year through FY 2029 to fund TBI prevention, research and service delivery through grants to states;
- [H.R. 6960](#), the Emergency Medical Services (EMS) for Children Reauthorization Act, reauthorizing the Children's EMS Program at \$24 million annually through FY 2029; and
- [H.R. 7153](#), the Dr. Lorna Breen Health Care Provider Protection Reauthorization Act, reauthorizing this program at \$45 million per year through FY 2029 to support mental health and wellness programs for health care professionals.

HHS OIG Update on Medicare Advantage Plan Prior Authorization

On March 18, the U.S. Department of Health and Human Services Office of the Inspector General (OIG) published an "[impact brief](#)" highlighting the OIG's work on Medicare Advantage (MA) plan prior authorization issues. The report notes that MA organizations deny over one million prior authorization requests yearly. In 2019, an estimated 13% were for services the OIG deemed medically necessary for the patient. The document outlines specific concerns and steps undertaken to address the problems.

CNS and AANS Lead Amicus Brief in Surprise Medical Billing Case

Under the [No Surprises Act](#) (NSA), physicians and insurers can use an independent dispute resolution process to determine the payment amount for services. The process was intended to keep patients out of the middle of these billing disputes. Unfortunately, the final rules implementing the law unfairly favor insurers when settling out-of-network payment disputes. Several lawsuits challenging the NSA are making their way through the courts, and

on March 20, the CNS and the AANS joined a physician-led amicus brief to ensure fair payment for physician services. Click [here](#) to read the amicus brief.

MedPAC Releases March Report to Congress

On March 15, the Medicare Payment Advisory Commission (MedPAC) released its March 2024 [Report to the Congress: Medicare Payment Policy](#). For 2025, MedPAC recommended updating Medicare's base payment rate for physicians by the amount specified in current law plus 50% of the projected increase in the Medicare Economic Index. The commission also recommended that Congress significantly restructure the Medicare Advantage (MA) program, citing a lack of transparency and noting that the MA plans get paid more than providers who serve beneficiaries in traditional Medicare. A news release with more details is available [here](#).

CNS and AANS Comment on Cost Measures for Movement Disorders

On February 28, the CNS and the AANS commented on proposed cost measures for movement disorders. **Jason M. Schwab**, MD, a stereotactic and functional neurosurgeon specializing in surgery for neurological disorders that impact movement, serves on the measure development workgroup organized by Acumen, LLC, which is the Centers for Medicare & Medicaid Services contractor developing these measures.

The comment letter states that movement disorders cost measure should accurately reflect the role and value of neurosurgeons. It should not create real, or even perceived, disincentives that discourage neurologists and other clinicians from referring patients with disabling conditions for effective neurosurgical procedures that are evidence-based and considered standard of care. Click [here](#) to read the letter.

CNS and AANS Reject MIPS Surgical Care MVP

Earlier this year, the CNS and the AANS submitted comments to the Centers for Medicare & Medicaid Services (CMS) on a proposed Surgical Care Merit-Based Incentive Payment System (MIPS) Value Pathway

(MVP). MVPs are a new MIPS reporting pathway available to clinicians. They are intended to reduce reporting burdens, provide clinicians with more meaningful performance feedback and help prepare them to participate in alternative payment models. While MVPs are optional, CMS intends to make them mandatory in the future and continues to introduce additional MVPs to fill existing gaps in specialties and patient populations.

In rejecting the proposed [Surgical Care MVP](#), the neurosurgical groups were highly critical given that the MVP arbitrarily combines measures that assess numerous unrelated surgical specialties like general surgery, neurosurgery, cardiac surgery and breast surgery, and provides little value to participating clinicians and their patients. The CNS and AANS also voiced concern that CMS did not consult relevant clinical stakeholders when developing this MVP and assumed certain measures broadly apply to all surgeons based on their title alone. Click [here](#) to read the letter.

New Report Shows Continuing Projected Physician Shortage

On March 21, the Association of American Medical Colleges (AAMC) issued new projections demonstrating that the U.S. faces a physician shortage of up to 86,000 physicians by 2036. This updated report titled "The Complexities of Physician Supply and Demand: Projections From 2021 to 2036" projects a shortfall of up to 19,900 surgeons and 40,400 primary care physicians. By comparison, the shortage projected in the new report is smaller than the findings demonstrated in the last report published by the AAMC in 2021.

The report confirms that lifting the federal statutory cap on Medicare support for GME will help alleviate the current and projected doctor shortage. To that end, the CNS and the AANS continue to urge Congress to pass the Resident Physician Shortage Reduction Act ([H.R. 2389/S. 1302](#)), which would help address the physician shortage by gradually increasing the number of Medicare-supported residency positions by 14,000 over seven years. Click [here](#) for the full report and [here](#) for the summary. ■

IMAGES IN NEUROSURGERY

Resection of a Cervicomedullary Ependymoma

A 24-year-old female presented to our office with mild sensorimotor deficits. CT and MRI spine demonstrated an expansile, well-circumscribed, T2 hyperintense, T1 hypointense, contrast-enhancing intramedullary mass at the cervicomedullary junction (**Figure 1**). Physical exam was notable for decreased left hemi-body sensory changes, left V2 and V3 sensory deficits, and hyperreflexia with pathological reflexes.

Diffusion tensor imaging (DTI, 32 direction) spanning the brain and cervical spine were mapped to a high-resolution anatomic model created with T2 0.5 mm axial slices. Additional 'AX_DTI_ZOOM' sequencing helped orient the tractography to produce axial 2D tracts with superimposed tractography. Synaptive Medical™ integrated BrightMatter™ surgical planning software was used for 3D modeling and surgical planning (**Figure 2**). Using this semi-automated platform, corticospinal tracts relative to the tumor anatomy were visualized before surgery and during intraoperative navigation. Suboccipital craniotomy and C1 laminectomy were performed. D-Wave monitoring was performed via cylindrical electrodes placed in the epidural space. Utilizing posterior tibial nerve stimulation and recording along the dorsal columns, the physiologic midline was identified, and midline myelotomy performed (**Figure 3**). As the tumor was excised using ultrasonic aspiration and microdissection techniques, continuous monitoring of D-waves, SSEP, and MEPs was conducted, with interruptions occurring solely for direct monopolar stimulation aimed at identifying the descending corticospinal tracts. Intraoperative direct stimulation of the descending corticospinal tracts correlated well with our spinal tractography and intraoperative ultrasonography. Neuromonitoring was stable, apart from a mild reduction in amplitude of 50% in the right posterior tibial nerve responses, which eventually recovered. Final pathology demonstrated ependymoma, WHO grade II. Postoperatively, she did well

with some transient dorsal column dysfunction. Post operative MRI cervical spine showed gross total resection (**Figure 4**). This case illustrates the value of brain stem and spinal cord tractography for surgical planning, in

conjunction with intra-operative spinal cord mapping/monitoring, in the surgical management of a challenging cervicomedullary ependymoma. ◀

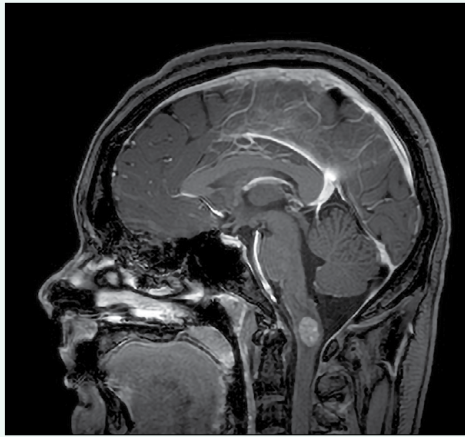


Figure 1: Preoperative, T1 + Contrast Sagittal MRI showing a contrast-enhancing intramedullary mass at the cervicomedullary junction

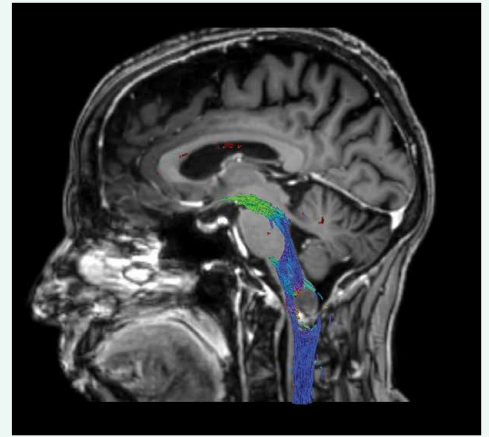


Figure 2: Synaptive Medical™ integrated BrightMatter™ sagittal tractography depicting the relationship between the corticospinal tracts and tumor

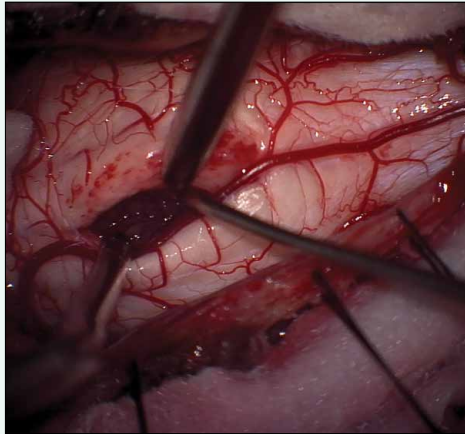


Figure 3: Intraoperative photograph depicting a midline myelotomy with underlying tumor

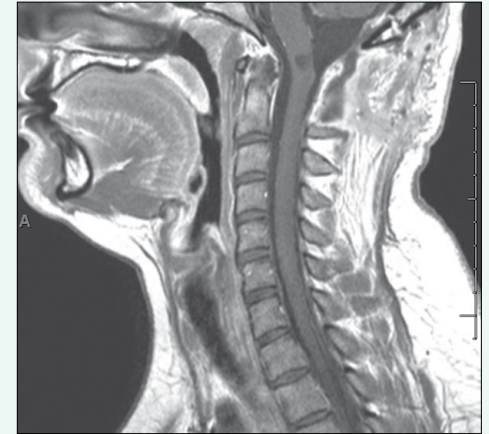


Figure 4: Postoperative, T1 + Contrast Sagittal MRI showing a gross total resection



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NEUROSURGERY ORIGINS



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- Special Symposium 06: Transforming Neurosurgery through Technology: The Innovation Symposium
- SYM16B: Neurotrauma in Combat, Disaster, and Other Austere Environments
- Special Symposium 03: CNS Data Science and AI for Neurosurgeons: A Hands-On Experience
- And many more!



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