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The Society of Neurological Surgeons

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Message from the President

Nathan R. Selden, MD, PhD

This is a time of great change in universities, healthcare systems, and society at large. In many ways, it feels more challenging to be a neurosurgeon and more threatening to our profession than ever before. Mergers, acquisitions, and other major realignments between medical schools and hospital systems are frequently and seriously impacting neurosurgery training programs. Stakeholders may be distant from our own schools and hospitals and are all too frequently driven by short-term profits, with little allegiance to patients and even less to academic priorities. At the same time, union representation of clinicians, both in training and in practice, is spreading rapidly across professions and disciplines, altering professional relationships and governance.

The good news is that the Society of Neurological Surgeons is working hard to engage with you in finding the solutions needed to meet this change and preserve our tripartite mission of healing, teaching, and discovery. As always, our focus is on training and inspiring the neurosurgeons of the future, defining a curriculum for neurosurgical science and innovation, and promoting an inclusive and patient-centered professional culture.

To advance neurosurgical education, the Society has launched the Neurosurgeon-Educator Fellowship. Our first two fellows, Seunggu Han of Stanford and Raj Mukherjee of Johns Hopkins are already pursuing their programs. In addition, members Larry Chin, Alan Boulos, and Dave Limbrick are currently finalizing design of a multi-step leadership training experience for neurosurgeons wanting to take on major governance roles in their departments, medical schools, or hospitals.

There are two strong reasons for the Society to pursue this work: first, neurosurgical education is core to our mission. The SNS now engages in the education mission across the lifespan of a neurosurgeon, from medical school to departmental and executive leadership. Second, our specialty exists in an increasingly interdependent and matrixed healthcare environment, in which influence is increasingly earned rather than position based.

this issue

The success of our leaders, both within our own institutions and amongst national healthcare stakeholder organizations, will strongly influence the success of the specialty going forward.

Please plan on attending the SNS Annual Meeting in May 2025 hosted by the Cleveland Clinic. We will follow up last-year's very successful session on resident unionization with a similar session on faculty union representation. We will learn about how impacted residency programs are navigating hospital training site realignments and system takeovers. There will be an interactive symposium with neurosurgeons serving in institutional leadership roles about their experiences. We will also for the first time recognize training excellence with a new residency teaching award. Finally, there will be the wealth of outstanding scientific presentations (including the Winn Award Lecture), just-in-time training program updates, and new information about departmental governance. Randy Jensen will provide additional detail about the program on behalf of his hard-working Annual Meeting Committee in the winter newsletter.

Until May, please feel free to reach out to any of the officers or myself with questions, suggestions, observations, and advice. The engaged and leading membership of the SNS is our super-power as an organization!

All my very best,

Nate Selden
President

Update on Resident Courses

Martina Stippler, MD & Nicholas Bambakidis, MD

After a four-year hiatus, the Society of Neurological Surgeons (SNS) Bootcamp Course triumphantly returned to live, in-person sessions this year. The decision to resume in-person training was driven by the recognition that hands-on experience is irreplaceable in the education and development of the next generation of neurosurgeons.

One of the biggest challenges we faced was securing industry support to make the Bootcamp a reality. Thanks to the invaluable partnership with Stryker, we were able to hold the in-person Bootcamp this year.

In this year's Bootcamp, we adopted a small-group teaching approach to create a more interactive and engaging learning experience. Instead of traditional slide presentations, groups of 5-8 residents met with two faculty members to discuss neurosurgical and ICU emergencies and how to respond to them effectively. This format allowed for in-depth discussions, immediate feedback, and a more personalized learning environment. The approach was very well received by participants, honoring the in-person effort while promoting active participation and deeper understanding through small-group learning.

To decrease the administrative burden on the SNS meeting team, this year's Bootcamp was held at three strategically chosen sites across the United States: The first session took place on July 12-13 at Baylor College of Medicine in Houston, TX, where 97 residents were instructed under the guidance of course directors Akash Patel and Robert North. On July 19-20, 53 residents attended the Bootcamp at Oregon Health & Science University in Portland, OR, led by Josiah Orina. The final session was on July 26-27 at Tufts Medical Center in Boston, MA, where 95 residents were trained by course director Julian Wu.

In total, we trained 245 residents, supported by 82 faculty members, including SNS faculty overseeing the courses. The energy at each location was palpable, with participants eager to engage, learn, and connect after years of virtual-only interactions. The turnout and enthusiasm were beyond our expectations, underscoring the importance and demand for hands-on neurosurgical training.

We are immensely grateful to Stryker for their generous educational and in-kind support for the Craniotomy Lab sessions. Additionally, Integra and Medtronic contributed essential equipment for the Bedside Procedures hands-on sessions. This generous industry support was crucial in making the Bootcamp a success.

Virtual courses

While we were thrilled to return to in-person training, the **virtual courses** continue to thrive. The course saw strong participation, and the topics covered have proven to be well-suited to this format. The flexibility and accessibility of virtual learning have allowed us to teach this content and reach residents at very minimal cost, while being just as effective. The content chosen for the Junior Resident Course lends itself to the virtual format. The SNS is offering three virtual courses: the Junior Resident Course for PGY 2 in June, the Senior (PGY 6-7) Resident Course in the fall, and a new Leadership Course for PGY-4 and PGY-5 residents in the spring.

The **Senior Resident Course** will now be held only once a year in the fall, with a focus on transition-to-practice topics. Recognizing the need for leadership development, we are also introducing a new Leadership Course specifically designed for PGY-4 and PGY-5 residents. This course will concentrate on the leadership skills essential for Chief Residents, preparing them to take on their roles' increased responsibilities and challenges. We welcomed Dr. Peter Nakaji as Senior Resident Course Director. He will be leading these efforts together with Dr. Sharona Ben-Heim.

On March 16, we hosted the second part of the SNS Senior Resident Transition to Practice Course, designed to support residents as they prepare for the transition to independent practice. The course was attended by 37 senior residents and covered essential topics, including personal and medico-legal issues, organized neurosurgery, personal finance, and ways to get involved in the broader neurosurgical community.

The agenda for the Senior Resident Transition to Practice Course included a welcome session followed by a series of discussions on important topics such as personal legal matters (wills, estates, conflicts of interest, and STARK regulations), organizational involvement and entrepreneurship (referred to as "side hustles"), and medical legal issues like malpractice and expert witness duties. Personal finance was also covered, followed by group discussions to foster deeper engagement. The event concluded with closing remarks.

Recordings of the sessions were made available on the SNS website for residents to view, along with additional post-course materials.

Looking ahead, the **Senior Resident Course** will be consolidated into a single event each year, with the next course scheduled for **November 16, 2024, from 9:00 AM to 12:00 PM EST.** This change will allow us to add the Leadership Course for mid-level residents and provide CNS professional development along the resident continuum without adding to the administrative burden.

The **Junior Resident Course**, very successfully led by Dr. Carolyn Quinsey and Dr. Cara Sedney, has now been transitioned to a virtual format permanently, focusing on content that can be effectively taught in this setting. The most recent course took place on April 5 and was attended by 120 PGY-2 residents from 82 neurosurgery residency programs.

The day's agenda began with a welcome, followed by a session on leadership skills and effective communication, featuring insights from a Chief Resident panel. Next, participants discussed disclosing medical errors, risk management, and professionalism. After a short break, the focus shifted to managing intra- and post-operative catastrophes, followed by life hacks and practical advice. A session on quality improvement projects and work groups was then held. After another break, the day continued with guidance on how to get published, concluding with a Kahoot game and closing remarks.

The most recent course took place on April 5, 2024, and was attended by 120 PGY-2 residents from 82 neurosurgery residency programs. The decision to move didactic content best taught in person to the in-person Bootcamp has allowed us to concentrate on delivering impactful, relevant content virtually.

Update on Resident Courses

Martina Stippler, MD & Nicholas Bambakidis, MD

Continued

The course was supported by $10,000 in industry funding from Stryker, with registration fees generating an estimated revenue of $17,300.

Feedback from residents was overwhelmingly positive, highlighting the value of the topics covered and the interactive nature of the sessions. (see word cloud)

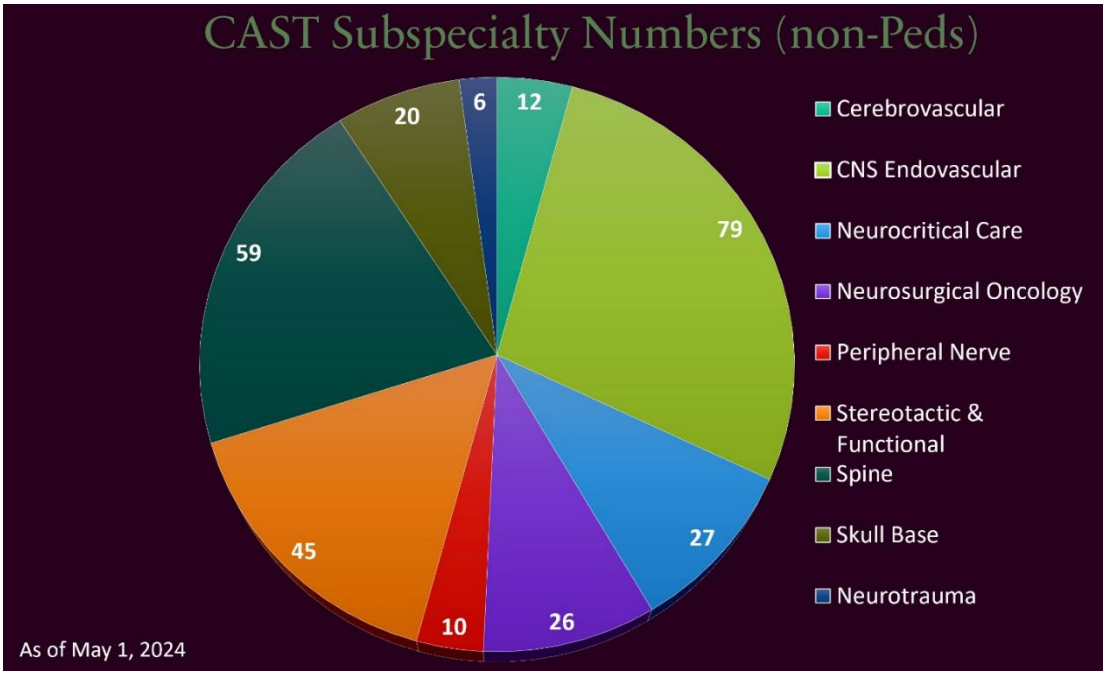
By embracing a virtual format, we've been able to continue offering high-quality education to our junior residents, ensuring they are well-prepared for the challenges ahead.

The Resident Course Subcommittee is excited about being back in person for the boot camp and is looking forward to connecting with established and new course directors and faculty to teach the next generation of neurosurgeons.

CAST Update

Vincent Traynelis, MD

The Committee on Advanced Subspecialty Training (CAST) is charged with overseeing the accreditation of 284 Subspecialty Fellowship Programs in Neurological Surgery. Vincent Traynelis is the current Chair of CAST and William Mack is the Chair-elect. The CAST Committee has representation from each of the subspecialty fellowships: Ansar Rai, Neuroendovascular; Perry Ball, Neurocritical Care; Brian Hoh, Cerebrovascular; Jonathan Miller, Stereotactic and Functional; Jeff Weinberg, Neurosurgical Oncology, John Golfinos, Skull Base; and Michael Steinmetz, Spine and Peripheral Nerve. There are another 33 Pediatric Fellowships accredited by the Accreditation Council for Pediatric Neurosurgery Fellowships (ACPNF). David Limbrick currently represents Pediatrics on CAST. CAST has input from multiple other medical disciplines in the endovascular and critical care domains. Howard Riina (ABNS Secretary), Richard Ellenbogen (RRC Chair), and Kristen Hirsch (ACGME Director) are ex-officio members of CAST. Leann Lepa is the CAST Administrator and Dr. Pam Derstine provides critical programmatic and administrative support.



CAST Update

Vincent Traynelis, MD

Continued

Currently, each approved program is required to submit an annual report in July which allows for continuous accreditation. Applications for new programs are open once per year and accepted from January 1 through February 28. Requests for Program Director changes can be made at any time. Programs must inform CAST, in writing, within 90 days of a change in Fellowship Program Director (FPD). Ideally, the FPD is replaced with an adequately experienced and credentialed individual. If a suitable FPD is not immediately available, the program may name an interim FPD to oversee the Fellowship for the remainder of that academic year.

CNS Endovascular is now designated Neuroendovascular. Starting with the 2024 annual report (2023/24 academic year) each program will be responsible for obtaining, submitting, and attesting to the prerequisite year numbers from previous institutions for those fellows that transfer after their prerequisite year. Middle meningeal artery embolization numbers are being tracked. CAST continues to pursue a project initiated by the Spine Section to develop a case tracking module that will utilize CPT data. If successful, it may be modified for use by other subspecialties. CAST is reviewing the general program requirements for all specialties and will be standardizing much of the information so that it is consistent across subspecialties.

There has been great interest in using a match process for Fellow selection and a number of subspecialties are already successfully doing so. CAST supports Fellowship Matching and encourages all groups to pursue this equitable method of placing applicants.

CAST leadership offered appointments to meet in person with individual Program Directors at the 2024 SNS Annual Meeting. This was very well received and will be available during the 2025 meeting.

The ACGME offers Recognition of Sponsoring Institutions that have non-standard training (NST) programs. NST programs provide clinical training for foreign national physicians in advanced subspecialty programs for which there is no ACGME accreditation or American Board of Medical Specialties member board certification. Foreign national physicians receive J-1 visas sponsored by the Educational Commission for Foreign Medical Graduates (ECFMG) to enable their participation in NST programs. All CAST Programs are non-standard training programs. CAST is in dialogue with the ACGME to streamline the application process for CAST accredited programs.

There is a plethora of information on the CAST website (Home - New (sns-cast.org) including specific details for each subspecialty fellowship, and timeline data for applications and annual reports.

SNS Neurosurgeon-Scientist Training Program (NSTP)

Costas Hadjipanayis, MD, PhD & Linda Liau, MD, PhD

The SNS Neurosurgeon-Scientist Training Program (NSTP) has entered into its second year after a successful first year. The NSTP is designed to increase the number of neurosurgery residents conducting research nationally and to enhance their success rate in becoming independent neurosurgeon-scientists. The NSTP serves as a formal mentored research program (1 or 2 years) for neurosurgery residents. Residents can enter into Year 1 or Year 2 of the program based on whether they have completed a protected year of research. Residents who have completed a protected year of research and are heading back to their clinical rotations are eligible to apply for the NSTP Year 2. As part of the NSTP, the initial class of residents were able to attend the NIH NINDS R25/UE5 workshop which was held on March 8-9 in Boston, MA. Attendees participated in various workshops designed for physician neuroscientists that included grant writing, discussion of research aims, and progress towards an NIH K award application. All NSTP participants will be able to attend for the first time a Neurosurgeon-Scientist Symposium being held this fall on September 28th at the CNS Annual Meeting in Houston, TX. Established neurosurgeon-scientists will discuss different early career research paths and participate in round table and panel discussions with residents and young faculty members.

Current funding for the NSTP has been generously provided from the nonprofit StacheStrong and the AANS/CNS Section of Cerebrovascular Surgery and the American Society for Stereotactic and Functional Neurosurgery (ASSFN). After a rigorous peer-review selection process that included virtual interviews of all applicants on April 26th, a total of 6 neurosurgery residents from across the country were selected for the NSTP this past spring and initiated their research this summer.

Three residents entered Year 1 of the NSTP. Year 1 recipients will receive funding to attend the CNS Neurosurgeon-Scientist Symposium in Houston this fall and the NINDS workshop in the Spring of 2025. The following individuals were selected:

Malia McAvoy, MD (University of Washington)
Kristen Scheitler, MD (Mayo Clinic Rochester)
Bryan Mott, MD, PhD (Wake Forest University)

Three other residents, who have already completed a full year of protected research, entered Year 2 of the NSTP. These residents will receive actual research funding to continue their important research projects as they complete their residency. These recipients are the following:

Ali Alawieh, MD, PhD (Emory University)
Danny Huang, MD (Stanford University)
Mark Youngblood, MD, PhD (Northwestern)

Please join the SNS in congratulating our second class of NSTP participants. The call for new NSTP applications (Years 1 and 2) will be released on the SNS website in early 2025. Applications will be reviewed in the Spring of 2025 and selection of applicants will be determined thereafter. Please reach out to Costas Hadjipanayis (hadjipanayiscg2@upmc.edu) or Linda Liau (lliau@mednet.ucla.edu).

Ashok R. Asthagiri, MD

Ashok Asthagiri was born in Chennai, Tamil Nadu, India, and immigrated to the US in 1982. He grew up in Ohio and completed his undergraduate studies at the University of Akron and received his medical degree from Northeastern Ohio Medical University ('01).

He subsequently completed neurosurgical residency at the University of Virginia. During this time, he completed enfolded fellowships in clinical neurosurgery at Auckland City Hospital and neuropathology at UVA.

After residency, he joined the Surgical Neurology Branch at the National Institutes of Health (NINDS) in Bethesda. During those six years, his research was focused on patients with multiple neoplasia syndromes (NF2 and VHL) for which he received the AANS/CNS Tumor Section Young Investigator Award in 2011. He helped establish the NIH as part of the CTF NF Clinic Network and established the NF2 natural history study.

In 2013, he rejoined UVA, where he is now directs the surgical neuro-oncology and skull base programs. He leads a multidisciplinary effort to treat neurocutaneous disorders, established UVA as a VHL Comprehensive Clinical Care Center and serves on the VHLFA Clinical Advisory Council. In addition to his interest in neurogenetic disorders, he has a special interest in elucidating the pathophysiology of disease progression in skull base tumors to improve surveillance paradigms, treatment options and forecast tumor behavior.

Dr. Asthagiri is the W. Gayle Crutchfield Professor and the Departmental Vice-Chair for Education. He has served as faculty in multiple skull base workshops and is the director of the UVA Microsurgical Anatomy and Skull Base Laboratory, where he leads monthly didactics and hands-on skills sessions for neurosurgical trainees. He also developed and co-directs the annual "CNS Essentials for a Reward Neurosurgical Career" held annually to help newly transitioned faculty into their roles as attending physicians. Dr. Asthagiri routinely participates in mentorship programs with undergraduate students and is the neurosurgery medical student rotation director.

Dr. Asthagiri has served on the Executive Committee of the Congress of Neurological Surgeons since 2010. He has served as the chair of the Research Committee, editor-in-chief of Self-Assessment in Neurological Surgery (SANS), chair of the Education Division, Scientific Program and Annual Meeting Chair, and Co-chair of Development and Public Relations. He currently serves as Treasurer for the CNS.

Ashok married Heather Asthagiri, MD, of Columbia, Tennessee, in 2010. She is a PM&R physician at UVA Health. They are the proud parents of Avani and Arjun.

Maxwell Boakye, MD, MBA

Maxwell Boakye, MD MPH, MBA serves as Professor and Vice Chair of Neurosurgery and the Ole A., Mabel Wise, and Wilma Wise Nelson Endowed Chair at the University of Louisville. He serves as the Acting Co-Director of the Kentucky Spinal Cord Injury Center and the Co-Director of MD PhD and physician-scientist training programs at the University of Louisville. He is the co-director of professional development for the University of Louisville Clinical and Translational Research Center, founded under an NIH clinical and translational research grant.

As a neurosurgeon-scientist, his primary research objectives are to discover novel treatments for paralysis caused by spinal cord injury. He is the primary neurosurgeon for the University of Louisville's epidural stimulation for spinal cord injury research program and the director of the porcine large animal spinal cord research program. He also oversees the Department of Neurosurgery Outcomes Research Program. Dr. Boakye has produced over 200 peer-reviewed scholarly publications and co-edited the Essentials of Spinal Cord Injury textbook.

H. Isaac Chen, MD

Dr. H. Isaac Chen is an Associate Professor of Neurosurgery at the University of Pennsylvania, where he also serves as the Residency Program Director and Surgical Director of the Penn Epilepsy Center. Dr. Chen graduated from Harvard University with a bachelor's degree in Biochemical Sciences. He subsequently completed his medical degree and neurosurgical residency at the University of Pennsylvania. Dr. Chen's clinical practice focuses on the comprehensive surgical care of epilepsy patients, including traditional open surgical techniques and newer minimally invasive approaches such as laser ablation and neuromodulation. He also has interests in the surgical management of intra-axial brain tumors, especially those in and around eloquent regions, and provides care for Veterans with movement disorders at the Philadelphia VA Medical Center.

Dr. Chen's research interests are in the areas of cellular and molecular neurosurgery. His NIH-funded laboratory seeks to develop novel approaches for rebuilding brain circuitry after injury. Current efforts center on transplantation of human brain organoids and understanding the connectivity and integration of these grafts with host brain networks. This work combines techniques and principles from stem cell biology, neural tissue engineering, and systems neuroscience. Dr. Chen is also involved in the translation of gene therapies for a number of brain disorders, including Friedreich's ataxia. This work involves the testing of gene therapy products in large-animal models and the development of new MRI-guided platforms for these interventions. Moreover, Dr. Chen actively participates in human clinical trials of gene and cell-based therapies.

Michael R. Chicoine, MD

Michael R. Chicoine was born in Chicago Illinois, attended college at the University of Illinois in Champaign-Urbana, and attended medical school at UCLA. He completed neurosurgery residency training at Washington University and Barnes-Jewish Hospital in St. Louis from 1990-97 under Ralph Dacey, Jr. and a skull base fellowship at the University of Cincinnati under Dr. Harry Van Loveren.

In 1998 Dr. Chicoine returned to Washington University, where he was a faculty member for 25 years and in 2011 was named the August Busch Professorship Chair of Neurosurgery. At Washington University, from 1998 to 2022, he had a busy clinical practice with emphasis in brain tumors, skull base tumors, pituitary tumors, and cerebrovascular disease, and was also active in stereotactic radiosurgery.

In St. Louis, Dr. Chicoine ran a basic science research lab for years in which he studied brain tumor biology, and was a clinical investigator participating in variety of federally and industry funded clinical trials for brain tumors and cerebrovascular disease including the MISTIE III and ENRICH trials. An emphasis of Dr. Chicoine's educational efforts is surgical training including cadaveric skull base laboratories.

In 2007 with Dr. Ralph Dacey and colleagues, Dr. Chicoine was an early adopter of the iMRI at Barnes-Jewish Hospital and lead a multi-center research collaboration with 10 other North American centers to assess the impact of iMRI for malignant brain tumors and other conditions.

Dr. Chicoine has authored or co-authored more than 150 peer-reviewed and has been an active member of a multiple neurosurgical organizations including the Intraoperative Imaging Society (President 2017-19), NASBS (Member Scientific Program Committee Member and Executive Committee, Director At Large, and Annual Meeting Scientific Program Chair 2013), CNS, AANS, and others. Dr. Chicoine made multiple neurosurgical trips to Nairobi Kenya and has hosted multiple East African neurosurgeons as visiting scholars. Dr. Chicoine has been an invited editorial reviewer for numerous scientific publications and the skull-base section editor for Operative Neurosurgery (2016-2024), and Neurosurgery (2024 to present). Dr. Chicoine was a consultant to the St. Louis Rams football team and the NFL from 1998-2015.

After more than 30 years in St. Louis, Dr. Chicoine moved to Columbia, Missouri to become the inaugural chair of the department of neurosurgery (formerly a division of surgery) at the University of Missouri, where he is Professor of Neurosurgery and Otolaryngology, and a Hugh E. Stephenson Endowed Professor.

Dean Chou, MD

Dr. Dean Chou is a California native, born and raised in San Francisco. He attended the University of California at Berkeley after high school and matriculated at the University of California San Francisco (UCSF) for medical school. During medical school, he took a year off to do a Howard Hughes research fellowship studying the molecular genetics of brain tumors at the Massachusetts General Hospital under the current Chair of Pathology, Dr. David Louis. He returned to UCSF to finish his medical studies and matched at the Johns Hopkins Hospital for Neurosurgery residency under Dr. Donlin Long. As the Chair of Johns Hopkins Neurosurgery changed hands, Dr. Chou finished his residency under Dr. Henry Brem as Chair. Dr. Chou then completed a fellowship in complex spine surgery under Dr. Volker Sonntag at the Barrow Neurological Institute.

After completion of fellowship, he returned to his alma mater and joined the faculty at UCSF. He spent 18 years at UCSF, dedicating his practice to complex and minimally invasive spine surgery. He was recruited to Columbia University in New York to become the Chief of the Spine Division and Professor and Vice Chair of Neurosurgery. He is also the spine fellowship director and co-site chief at the New York Presbyterian Allen Hospital and a member of the Och Spine team. He focuses on minimally invasive adult scoliosis procedures and degenerative conditions of the spine. His research focuses on clinical outcomes in spine surgery, and he is involved in many multi-center collaborative research efforts.

He lives in New York with his wife, Carin, and their two children, and he enjoys travel and exercise.

Geoffrey P. Colby, MD, PhD

Geoffrey P. Colby, MD, PhD, FAANS is a Professor of Neurosurgery and Radiology at the University of California, Los Angeles (UCLA). He is also the Director of the Neurosurgery Residency Training Program, the Director of Cerebrovascular Neurosurgery, and an Assistant Director of the NeuroEndovascular Surgery Fellowship Program at UCLA. Dr. Colby completed his bachelor's degree (*summa cum laude*) at Columbia University in New York City, and he then continued at Columbia University to earn MD, MPhil, and PhD degrees. He completed neurosurgery residency training and enfolded NeuroEndovascular fellowship training at Johns Hopkins. He was awarded CAST subspecialty certification in NeuroEndovascular Surgery in 2016 and Focused Practice in CNS Endovascular Surgery Certification in 2023. In 2013, Dr. Colby joined the Neurosurgery Faculty at Johns Hopkins in Baltimore. In 2017, he was recruited to join the Neurosurgery Faculty at UCLA. Dr. Colby's clinical practice focuses on the minimally invasive endovascular and the open microsurgical treatments for blood vessel disorders of the brain and spine. His research interests focus on developing novel treatments, sensors, and surgical techniques for cerebrovascular diseases and to improve patient outcomes. He has published over 135 peer-reviewed manuscripts in the areas of his expertise. He has been principal investigator for multiple clinical trials for treatment of brain aneurysms. Dr. Colby has a passion for education, and he has received teaching awards at both Johns Hopkins and UCLA. He has also proctored numerous neurosurgeons, interventional neurologists, and neuro-interventional radiologists across the country for complex endovascular brain aneurysm treatments. Dr. Colby was elected to the editorial board of the *Journal of Neurosurgery* in 2024.

Melanie G. Hayden Gephart, MD

Dr. Melanie Hayden Gephart is a brain tumor neurosurgeon and scientist. She directs the Stanford Brain Tumor Center and Brain Metastases Consortium (https://stan.md/BrainMets), multidisciplinary, collaborative groups of physicians and scientists improving outcomes for patients with malignant brain tumors. Given her regular interactions with patients with brain tumors, her laboratory is well-positioned to accelerate translational neuro-oncology research, as focusing on targets identified from, and validated with, primary human tissue and cerebrospinal fluid. Her research program (GephartLab.com) has focused on understanding and targeting the malignant brain tumor microniche for patients' therapeutic benefit. The laboratory studies brain-cancer cell interactions, develops new brain and cancer cerebrospinal fluid (CSF) biomarkers, and translates findings to clinical trials for patients (e.g., NCT05305365). Her laboratory has generated large and unique patient tissue and data repositories, which are freely available to the scientific and patient community through project-specific websites (e.g., BrainRNAseq.org, GBMseq.org, LMDseq.org). Dr. Hayden Gephart has an extensive track record of service to the University, organized Neurosurgery, the National Institutes of Health, and to training the next generation of diverse physician scientists.

Peter E. Konrad, MD, PhD

Peter Konrad, MD, PhD completed graduate degrees from Purdue University in Biomedical Engineering and Physiology developing device technology for cardiac implants (MS '85) and motor systems physiology (PhD '88) under Presidential Medal of Technology Awardee – Dr. Leslie Geddes. He became very interested in implantable medical device technology and neural engineering and sought to become a neurosurgical expert in the field of neurological implants. After completing medical school from Indiana University in 1991, he went on to Vanderbilt for neurosurgical residency and finished in 1997. Dr. Konrad remained at Vanderbilt from 1998 until 2020, where he grew one of the largest clinical programs in deep brain stimulation (DBS) and functional neurosurgery.

Dr. Konrad came to the Rockefeller Neuroscience Institute in 2020 as the JW Ruby Professor of Neurosurgery and Neuroscience and became the Executive Director for Clinical Translational Neuroscience, charged with leading clinical trials research. He transitioned to the position of Chairman of the Department of Neurosurgery in April of 2022. Dr. Konrad has mentored over 40 graduate students and clinical fellows in all areas of neural engineering and neuroscience research. He brings 25 years of federal and industry funded research experience as well as over 130 peer reviewed publications in the field of functional neurosurgery and neural engineering. He has served as advisor to the Congress of Neurological Surgeons on medical devices and was a Board of Director member of the American Association of Stereotactic and Functional Neurosurgery. After 18 years on the Board of the North American Neuromodulation Society (NANS), he served as the president during 2020-2022.

Dr. Konrad brings to the RNI a passion for clinical care, research and mentorship, especially in neurological device technology. In his role as Chairman of Neurosurgery, he is helping shape the next generation of leaders in neurosurgery at West Virginia University. In doing so, he enjoys mentoring students and faculty, acknowledging that innovation in healthcare depends on seeing through the eyes of discovery in others.

Amy Lee, MD

Amy Lee, MD, is the Chief of Pediatric Neurosurgery, Co-Director of the Neurosciences Center, and Fellowship Director at Seattle Children's Hospital. She is a Professor of Neurological Surgery and also serves as an Associate Program Director for the Department of Neurological Surgery at the University of Washington. Dr. Lee received her undergraduate degree from the College of William and Mary, then her MD degree at the University of Texas Health Science Center at San Antonio. She completed her neurosurgery residency at Washington University in St. Louis and pediatric neurosurgery fellowship at St. Louis Children's Hospital. Her clinical and research interests include craniosynostosis, pediatric brain tumors, and general pediatric neurosurgery.

Guy M. McKhann, MD

Dr. Guy M. McKhann is Professor of Neurological Surgery at Columbia University Irving Medical Center/New York Presbyterian Hospital, where he has 25 years of experience, combining clinical skill and compassionate care to maximize patient outcomes. He co-Directs the Division of Functional Neurosurgery and leads departmental efforts in Epilepsy Surgery, Brain Mapping for Tumors and Epilepsy, Adult Hydrocephalus, and Laser Ablation. He is a member of both the Columbia P&S Virginia Apgar Academy of Medical Educators and the P&S Academy of Clinical Excellence. His areas of particular technical expertise include awake and asleep brain mapping; low grade glioma, brain metastasis, and meningioma surgery; epilepsy surgery; minimally invasive, computer guided microneurosurgery; stereotactic laser ablation for tumors and epilepsy; neuroendoscopy and cerebrospinal fluid shunting; and gamma knife radiosurgery.

Dr. McKhann also works as a translational neuroscientist, directing the Epilepsy Neurophysiology Laboratory; helping lead the multi-departmental study of Cognitive Neurophysiology together with Catherine Schevon MD, PhD, and Charles Schroeder, PhD; and collaborating extensively with the Gabriele Bartoli Brain Tumor Research Laboratory. His basic and clinical research has been funded by the National Institutes of Health, the American Association of Neurological Surgeons, the Klingenstein Foundation, the Charles A. Dana Foundation, the New York Academy of Medicine, Parents Against Childhood Epilepsy, the Irving Center for Clinical Research, Citizens United for Research in Epilepsy (CURE), and the Tuberous Sclerosis Alliance.

Dr. McKhann graduated Phi Beta Kappa and Magna Cum Laude from Duke University, with Research Honors for his investigations into brain tumor immunobiology. He attended Yale School of Medicine where he was AOA, Cum Laude, a Farr Scholar, and one of five recipients of the medical school's highest thesis award. Dr. McKhann trained in Neurological Surgery at the University of Washington, as well as Atkinson Morley's Hospital in Wimbledon, England.

Dr. McKhann has extensive experience supporting medical education at CUIMC. He directed the medical student neurological surgery rotations and served on the Clinical Curriculum Committee for over 20 years. He remains an active member of the CUIMC Faculty Council.

Chris J. Neal, MD

Chris Neal was born on April 16, 1975, and grew up in Cameron, Missouri. He earned his undergraduate degree at the University of Missouri-Columbia where he met his wife, Katee. He began medical school in 1997 at the University of Missouri-Columbia. After graduating from medical school, he started his neurosurgery residency at the National Capital Consortium in July of 2001. During residency, Dr. Neal was intimately involved in the care of casualties from the wars in Iraq and Afghanistan. After finishing residency in 2008, he completed a spine fellowship at Northwestern University under the direction of Dr. Stephen Ondra. After fellowship, Dr. Neal became staff at National Naval Medical Center and Walter Reed Army Medical Center, now called the Walter Reed National Military Medical Center-Bethesda. During his military career, Dr. Neal was assigned to Germany in 2010. In 2014, he served in Afghanistan, where in addition to being a neurosurgeon, he was the Director of Surgical Services for the NATO Role 3 MMU hospital in Kandahar. In 2018, he was assigned to the Hospital Ship Mercy as a part of Pacific Partnership working in Vietnam. Additionally, he served on temporary duty in Okinawa, Japan in 2019 and 2021. In 2015, CAPT Neal was selected to be the program director for the neurosurgery residency at the National Capital Consortium. He served in this role until 2022. That same year, he completed his master's degree in the Health Professions Education program from the Uniformed Services University with his thesis focusing on intraoperative feedback in the advancement of neurosurgical education. Since 2021, he has been Professor of Surgery at the Uniformed Services University of the Health Sciences. During this time, he was heavily involved with faculty development programing. He retired from the military in 2023 after 22 years of service. Dr. Neal serves on the editorial board and is the associate editor for the AANS Neurosurgeon and is a reviewer for multiple journals. He is a primary investigator with the North American Clinical Trials Network for Spinal Cord Injury and is a member of the AO Spinal Cord Injury knowledge forum. He currently works at Maine Medical Center in Portland Maine where he is the director of spine surgery. He lives in Falmouth Maine with his Katee. Their daughter Clara is in college at Boston University.

Aditya S. Pandey, MD

Dr. Aditya S. Pandey is the Julian T. Hoff Professor and Chair of the Department of Neurosurgery at the University of Michigan. Dr. Pandey was born in the Northeast part of India and immigrated to the United States in 1986. He completed his grade schooling in Marion, Ohio. He completed his Bachelor of Science in Biological and Engineering Sciences from Washington University in St. Louis in 1997. He then went onto complete his Doctor of Medicine from Case Western Reserve University in 2001. Dr. Pandey completed his Neurosurgery residency training from Thomas Jefferson University Hospital in 2007. He then completed an endovascular and microsurgical fellowship training at TJUH in 2008.

In 2008, Dr. Pandey joined the University of Michigan Department of Neurosurgery as an Assistant Professor and was able to be promoted to Associate and Full Professor with tenure by 2020. In 2022, he was named the Julian T. Hoff Professor and Chair of the Department of Neurosurgery. He is a cerebrovascular neurosurgeon who also serves as the surgical director of the comprehensive stroke center at the University of Michigan. Dr. Pandey's research interests include the development of a high intensity focused ultrasound technology (Histotripsy) for the transcranial treatment of brain pathology including brain tumors and stroke. In addition, he collaborates with the Department of Radiology in understanding the role of MRI based quantification of brain iron content in predicting clinical outcomes post hemorrhagic stroke. Both these areas of investigation are funded through NIH. The pursuit of both of these areas of innovation and research have led to numerous patents and over 150 publications.

Dr. Pandey has dedicated great efforts in advancing neurosurgical and stroke care in the State of Michigan. He has led the development of the UM Health Sparrow Neurosurgery program in Lansing leading to neurosurgical services for the mid-Michigan community. In addition, he has contributed to the development of comprehensive stroke centers in Grand Rapids (University of Michigan Health West) and Traverse City (Munson Health Care).

Dr. Pandey is married to Sheela Pandey, MSW and together they have three children: Shyam, Meera, and Murli. His father, Dr. Bishun D. Pandey, and mother, Mrs. Kamla Pandey, reside in Columbus, Ohio. Dr. Pandey has two younger sisters, Anjana Tiwari and Richa Chandna.

Erika Petersen, MD

Dr. Petersen directs the Section of Functional and Restorative Neurosurgery at UAMS Medical Center. She joined the faculty in the Department of Neurosurgery at the University of Arkansas for Medical Sciences in 2010 and obtained board certification through the American Board of Neurological Surgery in 2014. She is the first female full professor in the state of Arkansas, Vice-Chair for Education, and program director for the neurosurgery residency.

Dr. Petersen completed her undergraduate education at Princeton University and received her medical degree from the University of North Carolina at Chapel Hill. She trained in neurosurgery at the University of Texas Southwestern with a fellowship in deep brain stimulation at the National Hospital for Neurology and Neurosurgery in London. Dr. Petersen has served on the AANS/CNS Joint Section on Pain and the CNS Scientific Programming Committee and sits on the Executive Board of the American Society of Pain and Neuroscience, where she is President. She is associate editor of stereotactic and functional neurosurgery for *Operative Neurosurgery* and Neurosurgery, Section Head Editor for *Journal of Pain* Research, and a member of the editorial board of *Neuromodulation*. Dr. Petersen maintains a robust research program focused on innovative indications for neuromodulation and has published over 70 journal articles and numerous chapters related to stereotactic and functional neurosurgery.

Raj K. Shrivastava, MD

Raj K. Shrivastava is Professor and Vice Chair for Education in the Department of Neurosurgery at the Icahn School of Medicine at Mount Sinai Medical center. He is the Residency Program Director. He holds joint appointment in the Department of Otolaryngology and is the Co-Director of the Endoscopic Skull Base Program.

Dr. Shrivastava was born in Brooklyn, NY in 1970. His mother was a Pediatrician at Kings County Hospital in Brooklyn, and his father was a Biochemist who worked previously at Columbia University. He attended NYC public schools throughout the many boroughs of the city and graduated from the Bronx High School of Science. He did a Co-terminal BS-MS degree at Stanford University, majoring in Biology and Neuroscience, graduating with Honors. While at Stanford he won two teaching awards in Biology. He attended to The Perelman School of Medicine at the University of Pennsylvania where he was an inaugural Clinical Neuroscience Scholar. While at Penn he was an NIH summer student scholar working in the lab of Dr. Peter Philips and Kevin Judy in the Department of Neurosurgery. He did his Neurosurgery residency at Mount Sinai Medical Center under the mentorship of Drs Kalmon Post and Joshua Bederson. He did a Skull Base fellowship with Dr. Chandranath Sen at (now) Mount Sinai West. After working there for a few years, he was recruited back to Mount Sinai Hospital to join the Skull Base Program under Dr. Josh Bederson. His practice consists entirely of surgery for skull base tumors both open and endoscopic.

Dr. Shrivastava has published over 140 peer reviewed publications and book chapters in the area of Skull Base surgery. His research interests include studying the complex neuro-anatomical and physiological properties of multiple skull base tumors using Ultra-High field 7T MRI where is co-investigator on an R01 and R56 NIH grant. He also studies skull base morphometric properties of Chiari malformations and Cranio-vertebral junction anatomy using Dynamic and electrographic MRI on an R21 NIH grant. Most recently he has been studying the genomics of meningiomas and attempts at characterizing actionable mutations through work at the Center for Advanced Genomics Technology. He is a two-time winner of the Cullman Family Award for Outstanding Patient Communication and Care. He lives in downtown NYC with his wife Anupam who works in Finance in Emerging Markets and has a daughter Samsara (20) who is a student at NYU and a son, Siddharth (16).

Martina Stippler, MD

Dr. Martina Stippler is a national leader in traumatic brain injury research and medical education. She is the Vice-Chief of Neurosurgery and Director of Neurotrauma at Beth Israel Deaconess Medical Center (BIDMC) in Boston. She holds an appointment as Associate Professor of Neurosurgery at Harvard Medical School.

Dr. Stippler leads the BIDMC multidisciplinary TBI committee, implementing programs to improve TBI care, from multimodality monitoring in severe TBI-injured patients to triage pathways for complicated mild TBI.

Dr. Stippler is a leader in neurosurgical medical education. In 2020, after completing a palliative care education and practice certificate program and a yearlong fellowship in Medical Education at Harvard Medical School Dr. Stippler focused on teaching residents and faculty skills for improving communication with patients and families experiencing severe injuries, including end-of-life and goals-of-care discussions. Her research has demonstrated a direct link between communication training, futile care, and moral injury/burnout in surgeons who provide emergency care. She also oversaw national initiatives to incorporate active teaching techniques in CME activities. Dr. Stippler has developed a national curriculum for neurotrauma care and is the Associate Program Director for the BMC/BIDMC neurosurgery residency program.

Dr. Stippler's research interests are multi-modality TBI management, triage of mild TBI, and goal of care discussions in urgent settings. She has participated in many landmark TBI studies such as PROTECT, the RESCURE (acute SDH) trial, and BOOST III.

Dr. Stippler is an engaged leader with several national professional societies. She has been a member of the Congress of Neurological Surgeons (CNS) Executive Committee since 2016 and is the first woman to hold the position of Secretary of the Congress. As Chair of the CNS Foundation, she established and secured funding to improve diversity in neurosurgery, overcome disparities in neurosurgery, and provide training opportunities for international neurosurgeons. She is also one of the past presidents of Women in Neurosurgery, and she is the chair of the AANS/ CNS Section of Neurotrauma and Critical Care.

Dr. Stippler completed her neurosurgery residency program at the University of Pittsburgh Medical Center, where she also completed a master's degree in clinical research. She maintains a busy complex trauma, spine, and endoscopic anterior skull base practice.

Ajith J. Thomas, MD

Dr. Thomas, a neurosurgeon specialized in open and endovascular treatment of cerebrovascular diseases is the Chief of Neurosurgery and Program Director of the neurosurgery residency at Cooper University Hospital. He is also the Chair of the Neurosurgery Department at Cooper Medical School of Rowan University. Dr. Thomas earned his MD degree from Christian Medical College, Vellore, India. After a year of surgery internship at the Mayo Clinic, Rochester, MN, he completed neurosurgery residency training at Henry Ford Hospital in Detroit. He then went on to complete a neuroendovascular fellowship at University of Pittsburgh and subsequently was recruited to BIDMC in Boston, as Chief of Cerebrovascular Surgery in 2007.

During his tenure at BIDMC, he was instrumental in starting and consolidating the medical center's Harvard Medical School-affiliated neurosurgery residency and served as Director of the Neurointerventional training program. He has trained numerous neurosurgeons who have gone on to become national and international physician leaders.

With more than 350 publications in peer-reviewed literature, his research spans the entire field of cerebrovascular neurosurgery, having also materialized in a US patent for a safe cranial drill for which he was awarded the GM Freudenstein Award. Specifically, he spearheaded the wide adoption of middle meningeal artery embolization, a minimally invasive method of treating chronic subdural hematomas of the brain and contributed to the expanded indications for flow diverter treatment of brain aneurysms. He is one of the principal investigators of NIH funded CHESS trial. His research of dural AV fistulas of the brain resulted in the widely adopted Thomas classification of carotid cavernous fistulae. He has been an invited lecturer both nationally and internationally. He is a member of the editorial board of PLOS One and serves as associate editor for Stroke: Vascular and Interventional Neurology

At Cooper, Dr. Thomas has been tasked with building an exceptional neurosurgery department that will build on the existing foundation of competent and compassionate care by further developing all three pillars of excellence in clinical care, education, and research. His clinical practice focuses on cerebrovascular disorders, trigeminal neuralgia, hydrocephalus, and Chiari malformation.

Dr. Thomas attributes his success to the unwavering support of his parents, the mentorship of his high school principal Mary Roy of Pallikoodam, India and his wife Anila Jacob MD, a pediatrician, and the light of his life. He has two children, Ranjit, who is a software engineer in NYC and Rachel who works in the film industry in Hollywood.

Chad W. Washington, MD

Chad Washington is a Professor and Chair of Neurosurgery at the University of Mississippi Medical Center (UMMC) in Jackson, MS. A native of Pontotoc, MS, Dr. Washington graduated from Millsaps College with a degree in Mathematics and Computer Science. He then completed a Master of Science in Biomedical Engineering at Vanderbilt University before obtaining his medical degree from UMMC in 2007.

Dr. Washington completed his neurosurgical residency at Washington University in St. Louis under the chairmanship of Dr. Ralph Dacey. During this time, he obtained a Masters in Population Health Sciences and completed an international fellowship at the National Neurosurgical Centre in Dublin, Ireland. He further specialized in cerebrovascular disease through a fellowship in endovascular neurosurgery at the Mallinckrodt Institute of Radiology at Washington University.

In 2015, Dr. Washington joined the Department of Neurosurgery at UMMC, focusing on open and endovascular treatment of cerebrovascular disease. He became the medical director of the UMMC Stroke Center in 2018, helping it to become one of only two Comprehensive Stroke Centers in the state of Mississippi. Following the retirement of Dr. Haynes Louis Harkey in 2019, Dr. Washington was selected as the Chair of the Department of Neurosurgery at UMMC.

Dr. Washington resides in Madison, MS with his wife Megan and their three sons: Collum, Hayden, and Carter.

Nathan T. Zwagerman, MD

Nathan T. Zwagerman, MD, joined the faculty at the Medical College of Wisconsin in 2017 after completing his residency and fellowship training at the University of Pittsburgh. He completed his undergraduate studies at Calvin College in Grand Rapids, MI while majoring in Psychology. He completed his medical training at Wayne State University School of Medicine in Detroit, MI. He was born and raised on a family farm in West Michigan. Dr. Zwagerman completed a two-year fellowship in endoscopic and open skull base surgery. His research has been focused on evaluating patient outcomes after skull base surgery, developing improved techniques, and genetic profiling of skull base tumors. Dr. Zwagerman received the Student's Golden Heart Award as a 4th year medical student as voted on by his peers for his work in research and his volunteer activity. In 2016, he was awarded the American Association of Neurological Surgeons Synthes Skull base award for his work with Dr. Paul Gardner for a randomized controlled trial of lumbar drain placement after endoscopic skull base surgery. In 2017, he was awarded the American Association of Neurological Surgeons first place poster for peripheral nerve. In 2022, he received a grant from the North American Skull Base society research grant for the study of glucose receptors on pituitary tumors. He has been the Program director for the MCW Neurosurgery Skull base Fellow since 2021 and took over as Neurosurgery Residency Program Director in 2023.

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