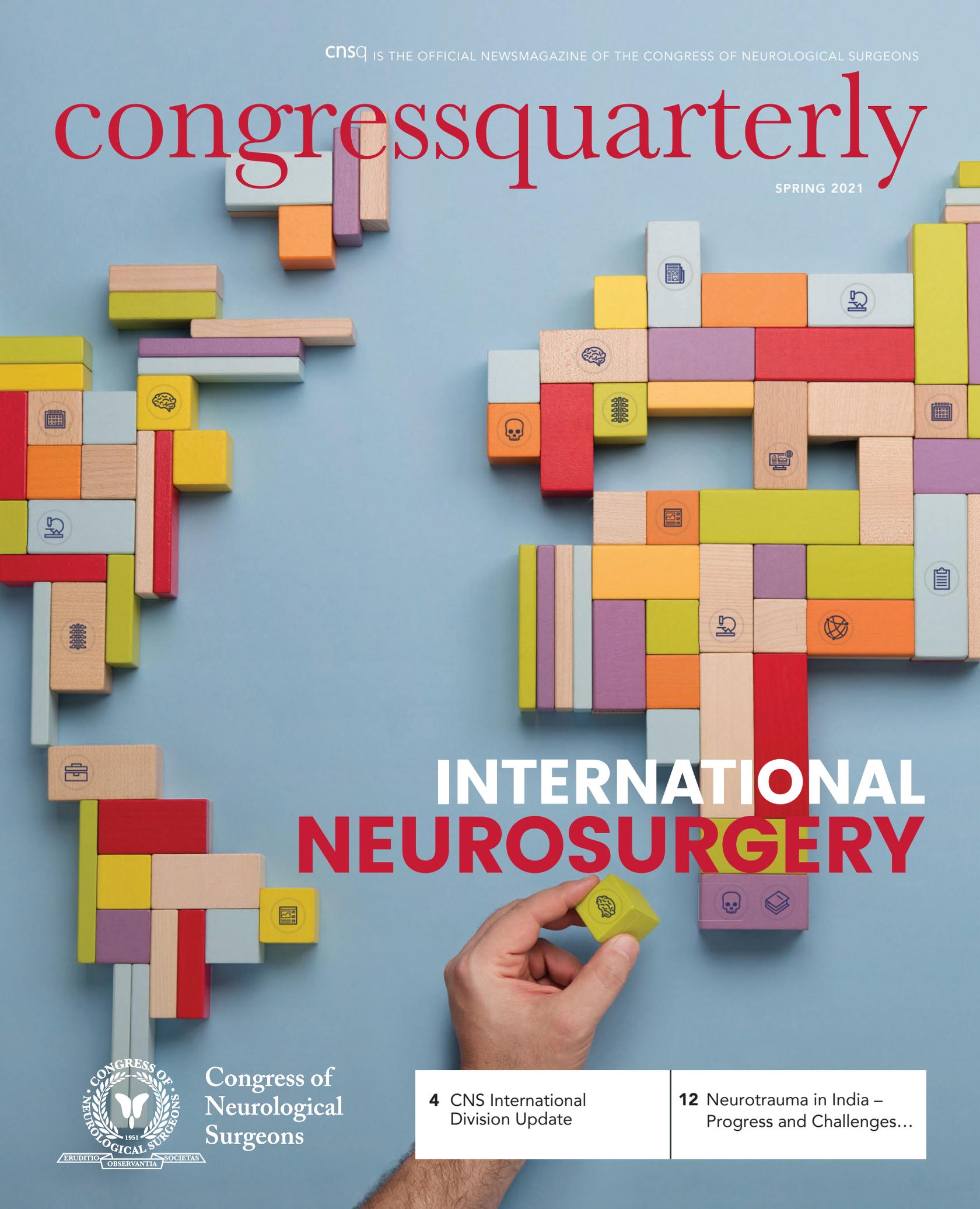


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CongressQuarterly

SPRING 2021



INTERNATIONAL NEUROSURGERY



Congress of
Neurological
Surgeons

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Progress and Challenges...

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Congress of
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Surgeons

EDITOR'S NOTE



Martina Stippler, MD
2020-21 Co-Editor
@martinastippler

Dear CNS membership:

With this issue of our *cnsq*, we are going on a journey. We all have been cooped up at home and at work with our national and international travel plans canceled, or at best curtailed and dampened, by this pandemic that is going on for way too long. But for the first time there is a light at end of the tunnel, and I hope you all are vaccinated and are staying safe and healthy.

The vision behind the international theme of this issue is twofold. For one, it is for our international members to introduce themselves and tell us about their neurosurgical experiences. Yet it also is for us U.S. neurosurgeons to look out beyond our borders and see how neurosurgery differs

around the world, what challenges neurosurgeons in other countries face, and the opportunities for engagement and connection. It is also a chance for us to discover similarities and synergies that can help us all grow.

I want to draw your attention to the update on the international division of the CNS. You might find our work inspiring, have ideas and want get involved. Please do! (Here is the link to register or volunteer for any CNS committee: <https://www.cns.org/about/join-a-committee>.) Working with the international committee cannot only be fun (when we can travel again) but extremely rewarding. Under the leadership of Dr. Clemens Schirmer and with collaboration with our international partners, we were able to reach more than 4,000 international neurosurgeons through webinars over the last 12 months.

If you are interested in global neurosurgery and international work, please refer to the two very engaging articles about the state of global neurosurgery education and about the experience of two students of the Harvard Program in Global Surgery and Social Change Experience.

This issue contains many more real-world examples of international works and experiences. I also want to highlight the CNS Foundation's philanthropic mission to offer international observerships – and you will hear directly from one of the tumor observership recipients.

In all – let us take a trip around the world and get inspired. Foremost, I hope to see you all in Austin for the 2021 CNS Annual Meeting. The registration is free – as a thanks to our members and to let you know we appreciate you! It is time for all of us to get back on planes and go places. This issue is a good start to get us motivated.

Last but not least, a big thank you to all our volunteer contributors– Koji Yoshimoto, Lokendra Singh, Eberval G. Figueiredo, Jogi V. Pattisapu, Roxanna M. Garcia, Rebecca A. Reynolds, Adam Ammar, Myron Rolle, Jeremy Hosein, Wayne Gluf, Ulrick S. Kanmounye, Nathan A. Shlobin, Sarah Woodrow, Kee B. Park Suzanne Tharin, William Harkness, Natalie Shenaman, Robert J. Dempsey, Gail Rosseau. Without their knowledge, expertise, dedication and time, this publication would not be possible.



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PRESIDENT'S MESSAGE



Brian L. Hoh, MD, MBA
President, Congress of
Neurological Surgeons

JOIN US IN AUSTIN
2021 CNS ANNUAL MEETING
OCTOBER 16-20, 2021 | AUSTIN, TEXAS

We hope you will take advantage of free registration for CNS members at the exciting 2021 CNS Annual Meeting where you can expect a variety of data-driven science, first-rate speakers, and plenty of collaborative learning opportunities. We are pleased to feature presentations from 2021 Honored Guest William A. Friedman as well as 2020 Honored Guests Bob S. Carter and Mark L. Rosenblum.

Free registration for CNS members through September 15!

Learn more about the 2021 CNS Annual Meeting and register today at cns.org/2021

Advance Registration Deadline: September 18
#2021CNS

William A. Friedman Bob S. Carter Mark L. Rosenblum

We will continue to monitor the current health situation and take precautions to help keep our attendees safe.

Visit cns.org/2021 for details on our engaging speakers, incredible educational sessions, networking events, hotel information, and more!

A key focus for me as CNS President is ensuring we continue to lead and transform our field. CNS has been the go-to source for neurosurgical information, innovation and education for decades. But we cannot be static. Leading through decades to come will require vision and change. Medical innovation is no longer concentrated in a few geographic regions of the world, but rather it occurs in all corners of the Earth. Perhaps that was always the case and access to technology made that clear.

The future of our profession lies in international collaboration and global scientific exchange. It will be critical to the continuous improvement of patient care and neurosurgical outcomes. CNS is enhancing its global relationships so that our members and our organization grow in tandem with technology.

Our annual meeting is your opportunity to stay connected with global developments in neurosurgery. We are extending complimentary registration to all current and new CNS members for the 2021 CNS Annual Meeting to thank you for your continued support and involvement this past year and to further your professional development.

In this issue, you will find insightful articles from the presidents of each of our key partner societies. They were happy to share with you their current priorities and developments in their respective neurosurgical communities.

For years, we have partnered with international neurosurgical societies to share scientific information, which we have shared with you and partners through our respective annual meetings and other educational offerings. We also developed new international society partnerships in conjunction with our annual meeting.

Today, our focus is on developing a few deep and long-term partnerships with key societies. You will learn more about them in the presidents' letters.

We have facilitated these international efforts largely through the work of volunteers within our International Division, led by co-chairs Drs. Clemens Schirmer and Martina Stippler. Despite the challenges of the COVID-19 pandemic, the International Division, together with others in our organization and our partner societies, has worked hard to bring you phenomenal educational offerings, including:

- Five-part webinar series developed with the Brazilian and Mexican societies, and attended by thousands of our colleagues from around the world
- Three-part series developed with our colleagues in Japan (the series is now underway)
- On-demand content
- Free, downloadable Guidelines App with recommendations and topic overviews for all CNS-produced guidelines in six specialty areas. Clinical guidelines are highly impactful on clinical practice and patient outcomes, and relevant to neurosurgeons worldwide
- Opportunity to network and discuss the profession with other members at our annual conferences

CNS recognizes that not all members have the same resources and technologies available in their individual practices. In the year ahead, we will be working to develop guideline adaptations that offer clinical guidance based on already published CNS guidelines for neurosurgeons practicing in areas with limited resources. I am excited about this initiative and hope to be able to share more information in the near future.

To everyone who worked so tirelessly to create these opportunities for our members, thank you and special thanks to:

- The CNS Foundation for obtaining the funding that enabled us to offer the webinars complementary to our members. I am grateful to foundation chair Elad Levy and vice chair Alex Khalessi for their leadership and contributions supporting our international mission. The Foundation is helping close the gap in worldwide neurosurgical knowledge and service with educational offerings and collaborative efforts. You can read more about the Foundation's work, including our International Observership Awards program in the Foundation Update on page 24.
- Our volunteers for thinking outside of the box and investing so much time and expertise into building these virtual offerings.
- CNS' International Division for leading the way.

The virtual world has been critical to maintaining engagement with our international members over the past year. I was touched to receive a message from one of our members in Brunei, Borneo, expressing gratitude for our online education, a crucial lifeline in the face of the pandemic.

"It's again that day of the year where we can stop and look back to see how blessed we were and also look forward with rekindled hope and trust for another blessing to be sent to us. Many thanks for the different avenues to learn on CNS. It has helped a lot during this COVID times where travel to learn is restricted. CNS has also demonstrated that the craft we practice is more of a science than an art so whatever someone does in US can also be repeated/reproduced in any part of the world by following certain steps. Please keep on improvising on this beautiful platform we have.

Kind regards,
Dawn Antony
 Consultant Neurosurgeon
 BNSRC
 Brunei"

I am happy to hear that our programs had an impact on his practice during this time, and I hope that many of you felt the same way.

I am excited and hopeful that we will welcome our international members back to live courses and activities as soon as it is safe to travel internationally again, and I am optimistic that the 2021 annual meeting will be our first opportunity. As an expression of our gratitude for members' continued support and involvement this past year, and in anticipation of continued challenges around professional development budgets, the CNS has decided to extend complimentary registration to all current and new CNS Members for the 2021 CNS Annual Meeting.

I would like to welcome you back personally so I hope this exclusive member benefit enables you to join us in Austin, Texas.

As always, I am eager to connect with our international members and learn more about your educational and training needs. I encourage you to reach out to me at info@cns.org if there is anything else the CNS can do to help support your professional growth. ❖



Clemens Schirmer, MD,
PhD



Martina Stippler, MD,
FACS

International Division Update



The International Division of the Congress of Neurological Surgeons aims to serve its members abroad. It develops programs to connect neurosurgeons globally, exchange ideas and provide high-quality educational content through international collaboration. We have key partnerships with international societies, including the Japanese Congress of Neurological Surgeons (JCNS), the Neurological Society of India (NSI), and the Sociedade Brasileira de Neurocirurgia (SBN). Building on our core mission and strength in neurosurgical education, we engage international neurosurgeons over multiple touchpoints

Traditionally our international engagement was centered around the CNS Annual Meeting, which remains a staple of our international effort. Still, during the last year, COVID-19 forced the international Division to rethink our approach and embrace new ways to engage.

Alongside our partners, we have organized a highly successful series of international webinars, each drawing hundreds of attendees from all over the world. We partnered with SBN and the Mexican Society (SMNC) and put together a five-part joint webinar series attended by more than 3,000 attendees and viewers. Similarly, we joined forces with the NSI and put together an international edition of its Superspecialty educational series. More than 1,100 attendees joined us for the four-part series that just concluded in December 2020.

Still upcoming at the time of this writing is a series of three webinars with JCNS. Straddling the dateline, these will be held on February 5-6, March 5-6,, and April 2-3 and focus on Neurooncology, functional and epilepsy, and cerebrovascular topics, respectively.

We were proud to offer our international members' free access to CNS' online

> WHILE WE ARE PROUD OF CNS' AND OUR PARTNER SOCIETIES' RESILIENCE DURING THE COVID-19 PANDEMIC, WHICH AFFECTED US ALL, WE LOOK AHEAD AND PLAN OUR RETURN TO A (NEW) NORMAL. THE EXCHANGE OF INTERNATIONAL EXPERIENCES AND IDEAS HAS BECOME MORE CRITICAL THAN EVER AND WILL BE THE BASIS FOR RE-IMAGINING HOW WE CAN BETTER SERVE OUR PATIENTS. <

education portfolio, a service generously underwritten by the CNS Foundation. It gives us tremendous validation to see that our global members took up this offering with great enthusiasm. Working with the CNS Foundation has been extremely valuable, and the global neurosurgical community benefits from its focus on international philanthropy, aiming to improve worldwide health. Please support the Foundation and its mission and encourage others to do so!

While providing a glimpse into our respective surroundings, virtual meetings are an imperfect substitute to being together to share ideas and friendship. Anticipating that the upcoming 2021 CNS Annual Meeting will be the first major neurosurgical meeting since 2019, we will kick it off by welcoming our international colleagues at our International Reception, Saturday, October 16, at 5:00 pm at the JW Marriott Austin. This networking event is open to all international attendees and exclusively for our colleagues throughout the world.

Looking ahead at the Annual Meeting program designed specifically for an international audience, we will have three sub-specialty specific parallel international sessions that will run concurrently on Monday, October 18, from 5:45 – 7:15 pm. Featuring internationally acclaimed

speakers and world-renowned names from the U.S., these symposia are among the most anticipated meeting highlights. The three sessions' topics will be centered on cerebrovascular and endovascular neurosurgery, neurosurgical oncology and skull base, and spinal disorders. In each session, we will award a special International Best Paper Award for the best international paper submitted to the journal *Neurosurgery* in 2020. Each article will be presented briefly and then discussed by an expert in the field.

Throughout the program, international speakers, faculty, moderators, and panelists will join their U.S. colleagues, bringing enormous diversity and perspective to the program.

We also designed a special luncheon seminar for international attendees to learn more about successful strategies of submitting scholarly work to neurosurgical journals, using the journals of the Neurosurgery family as examples.

Building more touchpoints and platforms for engagement with our international partners is the ongoing goal for the Congress going forward – we will continue to partner with the CNS Foundation to sponsor initiatives that bring value to neurosurgeons globally. We employ a carefully calibrated outreach strategy,

realizing that the needs are not the same for everyone. The Guidelines Committee seeks to partner with the World Federation to adopt specific guidelines to local needs using an established framework, which will help disseminate best practices to appropriate international communities.

We also give the current presidents of our three key partner societies space and a voice in this issue. Engagement is bilateral and, in this case, multilateral. We encourage you to read the perspectives from Profs. Eberval G. Figueiredo from the Sociedade Brasileira de Neurocirurgia, Prof. Koji Yoshimoto from the Japanese Congress of Neurological Surgeons, and Prof. Lokendra Singh from the Neurological Society of India.

While we are proud of CNS' and our partner societies' resilience during the COVID-19 pandemic, which affected us all, we look ahead and plan our return to a (new) normal. The exchange of international experiences and ideas has become more critical than ever and will be the basis for re-imagining how we can better serve our patients. Join us in our upcoming international webinars, spread the word, and take advantage of the educational portfolio the Congress has to offer. Become an international member of the CNS and enjoy the benefits of membership—including complimentary registration to the 2021 Annual Meeting in Austin. This way we would also be able to welcome you to the international committee where your voice would be heard directly.

We encourage our international members, colleagues, and friends to join us. We are looking ahead to welcome you to Austin, Texas, for an exciting meeting and celebration of global neurosurgery. We would like to greet all of you there personally! 🇺🇸



Koji Yoshimoto, MD, PhD

The history and mission of the Japanese Congress of Neurological Surgeons



The Japanese Congress of Neurological Surgeons (JCNS) was founded in 1980, nearly fifteen years after the establishment of the Neurosurgical Board Certification System in 1966 in Japan, and with more than 1,000 Board certified neurosurgeon, there were debates over how to provide lifelong education for Board certified neurosurgeon. Under such circumstances, the JCNS was founded in the spirit of the Congress of Neurosurgeons (CNS) to “maintain high standards of neurosurgery and continuing education of the younger neurosurgeons.” The JCNS also states that its mission is “to contribute to the health and welfare of Japanese people through lifelong education for neurosurgeons and the advancement of neurosurgery as a scientific discipline.” Michelangelo’s phrase “Ancora imparo,” meaning “I am still learning,” is inscribed on the JCNS logo.

In October 1980, right before the establishment of the JCNS, a founding member of the JCNS from Japan expressed his intention to establish the JCNS in Japan following the CNS, at the reception hall in a CNS annual meeting held in Texas under the presidentship of Professor R.H. Wilkins. According to the record, he received congratulations and a supporting message from many CNS members. The following year, in 1981, the first general meeting was held under the chairmanship of Keiji Sano, the then Professor of Neurosurgery at the

University of Tokyo. This first general meeting was attended by Professors G.M. Austin and C.G. Drake from the United States, who gave educational lectures there. Since then, the general meeting has been held every year, and this year, I will be in charge of the 41st general meeting as President.

The 41st Annual Meeting of JCNS will be held at Pacifico Yokohama from May 13th to 16th, 2021. The format of the meeting will allow for both online and on-site participation on the web and at the venue, respectively, due to the spread of COVID-19. The theme of this year’s meeting is *glocal neurosurgery*. “Glocal” is a term coined using “global” and “local,” and it has been in use since 1990. Today, it is often used in the context of economic activities and human resource development and is easily viewed as a geographical concept. Personally, I think of “glocal” as a physical and spatial concept; a process of developing and resolving problems, as local and global factors influence each other. Thus, “glocal neurosurgery” encompasses the following three meanings. First, taking Japanese neurosurgery as local, and the entire world of neurosurgery and medical care as a whole and society as a whole as global, we then want to consider the present situation and future potential of Japanese neurosurgical medicine from a glocal perspective. I believe that although Japan’s neurosurgical medicine has a global perspective, there are also glocal parts that have developed

independently in accordance with Japan’s social environment. Moreover, as physicians are associated with basic clinical practice units, neurosurgeons contribute to the community through the first-line treatment of patients with neurological diseases. Although we contribute to the development of the medical care and society, I believe that we need to think and act from a glocal perspective to advance and develop further. Second, if we consider the subspecialty of neurosurgery as local, and recognize the entire field of neurosurgery, which is a primary medical field, as global, a new knowledge could be created by practicing glocally, while understanding and overseeing all areas. Third, the parts and the whole are seen in terms of a local–global relationship. We believe that, from this point forward, there is a need for neurosurgeons to holistically aim for human medicine from a glocal position, seeking further progress and optimal solutions, while moving back and forth between the perspectives of the part and the whole, that is, micro and macro.

There are currently 8,618 members in JCNS. Just as there are two major American academic associations, the American Association of Neurological Surgeons (AANS) and the CNS, Japan has two major academic associations of its own, the Japan Neurosurgical Society (JNS) and the JCNS. Similar to the CNS, the JCNS is run by young neurosurgeons (50 years old or younger), and committee members are elected every

three years. In the annual general meeting held every May, all the workshop titles other than the luncheon seminar are specified by the committee members, and speakers from all areas of neurosurgery are assigned to each workshop, to help participants update their knowledge with the latest findings. In the JCNS annual general meeting, the president of the CNS has been invited to give a CNS presidential lecture. Likewise, the president of the JCNS has been invited to the CNS, and we have deepened our mutual interactions. About two years ago, we started a CNS–JCNS joint seminar at

the general meeting to further deepen our interactions. Aside from general meetings, we have also been working together to plan a joint webinar (Joint CNS and JCNS subspecialty series). Japan’s unique Self-Assessment Neurosurgery Exam (SANS) has been developed for lifelong education of neurosurgeons.

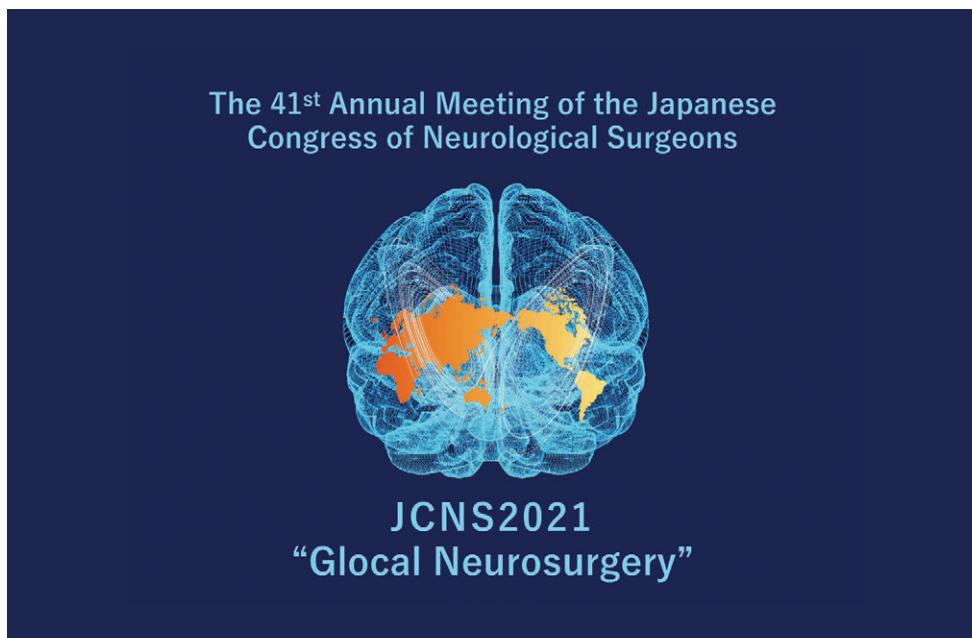
Here, I would like to explain the minor differences between neurosurgery in Japan and neurosurgery in the United States. The distinctive feature of neurosurgeons in Japan is that they are “fully responsible for treatment of patients with neurological

diseases, including not only surgical treatment but also non-surgical treatment.” Thus, they are in charge of medical treatment if necessary in addition to surgical treatment. So if a patient has a cerebrovascular disease, the neurosurgeon performs surgery or catheterization if necessary, but he may also perform medical treatment. In the case of treatment for malignant brain tumors, most neurosurgeons are also responsible for chemotherapy. In Japan, neurosurgeons serve as neuro-oncologists. Recently, more and more neurosurgeons have also been treating patients with dementia such as Alzheimer’s disease, in addition to surgery. I assume that this accounts for why Japan has by far the largest number of neurosurgeons per capita in the world.

As seen above, Japan’s health care system within which neurosurgery care is situated is different in many ways from that of the United States and has gone through a unique development. However, the JCNS, which was founded with the CNS as its older brother, hopes to make further progress by deepening cooperation with the CNS. 

Koji Yoshimoto, MD, PhD

President of 41th annual meeting of the Japanese Congress of Neurological Surgeons





Lokendra Singh

Indian Neurosurgery: Past, present and future



The Past

The history of Indian neurosurgery literally walks in tandem with history of India. Ancient India was one of the most advanced civilizations in the world and was an advanced nation in the fields like philosophy, architecture, metallurgy, mathematics, astronomy, geometry and medical science.

Sushruta, the great ancient Indian surgeon, who lived 600 to 1000 yrs BC was performing rhinoplasties, reconstruction of ear lobules and genitals mutilated as a part of punishment. The principals of rhinoplasty still remains the same as is well documented in the modern plastic surgery literature! Sushruta was also well versed with diabetes and cataract treatment. Lord Ganesha (an Indian God) is the epitome of neurosurgical advancement, even though mythological, in the form of a head of elephant being transplanted to human body. Even to conceptualize this thousand of years ago is a huge achievement. Jivika, the physician to Lord Buddha, is reported to have performed a trephination for removal of an intracranial mass approximately 400 yrs BC. The period from 712 CE till 1947 was not very productive for various reasons.

The Present

India got independence in August 1947 when a new India was born. A few gritty Indian neurosurgeons trained in UK and

> TODAY INDIA CAN BOAST OF WORLD CLASS CENTERS IN PRIVATE OR GOVERNMENT SETUPS WHICH ARE SECOND TO NONE BUT ALL ARE IN METROS! INDIAN NEUROSURGEONS ARE WELL RESPECTED FOR THEIR SURGICAL DEXTERITY AND INNOVATIONS AS PROVED BY LARGE NUMBER OF INDIAN NEUROSURGEONS WORKING IN UK, USA AND MANY OTHER COUNTRIES IN PROMINENT POSITIONS.

BUT, WHEN IT COMES TO THE MAJORITY OF THE INDIAN POPULATION A LOT NEEDS TO BE DONE. ITS RIGHTLY SAID THAT 'WEALTH BUYS HEALTH'. THE PAUCITY OF FUNDS FOR DEVELOPMENT OF NEUROSURGICAL FACILITIES IN RURAL AREAS REMAINS A HUGE CHALLENGE. <

USA came back and fought against all odds to earn respect for their specialty and in returns for themselves. The first department of neurosurgery was started by Prof Jacob Chandy at CMC Vellore in 1949, while the Neurological Society of India was formed in 1951 by four full time Neuroscientists and since then it has not looked back. There are approximately 1,900 fully trained neurosurgeons in India as per official record but unverified reports suggest approximately 3000. There are 15-20 centers of excellence which are of international standard. Like anywhere else in developing nations 80 percent neurosurgeons are located in

metropolitan cities. Meanwhile 70 percent of the population lives in rural areas!

Today India's population is 1.30 billion and it supports 1/6th of world's population. The prevalence of Neurological problems is 2400/100,000 of population per year but looking to this vast clinical burden only 75 medical colleges take 238 candidates every year for M.ch degree in Neurosurgery. There is also another stream to train neurosurgeons in the form of 32 recognized centers taking 42 candidates per year for DNB (Diplomate of national board of examinations) in neurosurgery. Both M.ch and DNB are equivalent and recognized qualifications.

TO PUT IT IN MY WORDS:

> TOGETHER THERE IS A LOT TO DO A LOT TO GAIN,
WHEN THE CAUSE IS PIOUS NOTHING GOES IN VAIN. <

A population of 1.3 billion with 1,900 neurosurgeons (if we consider only verified numbers) yields a ratio of approx. 1/650000.

Today India can boast of world class centers in private or government setups which are second to none but all are in metros! Indian neurosurgeons are well respected for their surgical dexterity and innovations as proved by large number of Indian neurosurgeons working in UK, USA and many other countries in prominent positions.

But, when it comes to the majority of the Indian population a lot needs to be done. Its rightly said that 'wealth buys health'. The paucity of funds for development of Neurosurgical facilities in rural areas remains a huge challenge. The criterion of availability of neurosurgical facilities within two hours travel time as per the Lancet committee report is still out of reach for large number of population though it is constantly improving now.

We need to increase Human Resources by training more neurosurgeons, Neuroanaesthetists, Nurses and OT staff for life saving essential services in deep remote and hilly areas. We need to encourage neurosurgical research, promote innovations that are practical and encourage advancements in telemedicine.

This COVID pandemic has taught us to use telemedicine to our great benefit and I think it will prove a boon in times to come. Some model of public-professional partnership can also be developed which can be of great

help to create neurosurgical facilities in rural areas. Unfortunately neurosurgery doesn't remain government's priority anywhere in world in spite of alarming statistics of TBI in road traffic accidents.

The strength of Indian neurosurgery remains scientific and cost effective treatment at very economical rates. Consultations, investigations, and operations are done at ridiculously low cost as compared with western countries. The hospitalization whether in ward or ICU doesn't cost the earth!

Indian training is more patient based as there is no dearth of them! We have all the latest diagnostic and treatment modalities available in most of the medical colleges where neurosurgery departments are, but these are used judiciously. There is still more emphasis on clinical science rather than overwhelming investigations. Investigation and treatment is much more prompt. Medicines are world class and are available at very reasonable cost. Unlike western world, a patient can choose his care giver and can contact the senior most team member easily. Even in emergency at odd hours if one visits any corporate hospital, chances are one will be seen by senior consultant within few hours. The consultant who operates usually follows up with his patients in wards with daily rounds.

The above mentioned points are a reason for increasing medical tourism from many neighboring and even western countries. We also have a hundred and

odd female neurosurgeons in India who are working shoulder to shoulder with their male counterparts without and bias or disadvantage.

The Future

The future of Indian neurosurgery remains very bright. Since independence, a span of 73 years, Indian neurosurgery has progressed in leaps and bounds and there are many shining stars who are making big impressions the world over with their innovations and techniques. Almost all types of procedures are done with results comparable with the best in world literature. NSI is very active in encouraging training of young neurosurgeons and has various well-planned programs like hands-on workshops, symposia and seminars. This COVID-19 pandemic has seen a flood of webinars which are, by and large, well-attended. The CNS and NSI do have a common platform for interesting webinars where CNS International Division Chair Prof Clemens Schirmer is very active.

NSI's association with a robust and well evolved neurosurgical society like CNS is and will be a boon for NSI members. Both societies have their unique strengths and can complement each other in furthering the cause of neurosurgery world over. ■

Lokendra Singh

President, Neurological Society of India



Eberval G. Figueiredo,
MD, PhD

The Global Challenges of Contemporary Neurosurgery and the Role of Neurosurgical Societies

Neurosurgical activities around the globe have been constantly challenged. The threats have been triggered by different actors. Some are inherent to the surgical activity in a scenario of constant technological transformation, others are related to technological disruptions that have impacted the entire society, with potential repercussions in medical reimbursement. Furthermore, the SARS-COV2 pandemic has posed additional difficulties. Medicine and neurosurgery, including its many subfields, echo culture, history, ethics, economics, and politics. Therefore, we must expect nuances and differences in how these challenges will impact neurosurgical practice in distinct countries and communities. In this context, the role of medical societies, e.g. the Congress of Neurological Society (CNS) in the United States and Brazilian Society of Neurosurgery, has become paramount in order to deliver integrated and coordinated answers to our common and respective challenges.

Usually, neurosurgeons have to cope with menaces regarding their private practice and clinical work. Academic neurosurgeons in their turn must deal with additional issues. Teaching (threats include work hour restrictions and a mutant resident culture, technological changes with their impacts in medical pedagogy), research (threats are lack of interest and resources, the growing control by basic scientists over governmental funding decisions and reduced participation of neurosurgeons in scientific review committees) and administrative matters (patient safety, administration of human resources and employment compliance) maximize the professional burden for academical neurosurgeons. The “Cushing paradigm” must be changed as academic neurosurgeons meet these major contemporary issues.

In addition, neurosurgeons worldwide must cope with an increasingly restrictive regulatory environment, including government regulations and decreased reimbursements for medical services. Decreased reimbursement seems to be a reality globally, considered by many experts an irreversible trend if neurosurgeons remain incomprehensibly absent and uninterested in this important debate. In Brazil, for instance, neurosurgeons have experienced a progressive cutting of spending with salaries and revenues. The possibilities to reinvest their incomes in training and continuing education decreases accordingly, indeed, with expected consequences to health care system and patient outcomes.

> PROACTIVE WORK WITH THE CIVIL SOCIETY IS CRITICAL IN MY OPINION. BRAZILIAN SOCIETY OF NEUROSURGERY IS CURRENTLY WORKING TO CONSTRUCT A PRODUCTIVE NETWORKING WITHIN THE CIVIL SOCIETY IN ORDER TO GUIDE PUBLIC DEBATE IN POINTS IN WHICH NEUROSURGERY HAS INTERESTS. ON THE OTHER HAND, WE HAVE OFFERED MANY SERVICES, INCLUDING PARTNERSHIP WITH SOLIDARITY INITIATIVES AND COMMITMENT IN EDUCATING THE LAY PUBLIC. <

The increasing number of subspecialties that may develop their own strategies weakens the effectiveness of coordinated action and decrease the power of neurosurgical societies in defending the neurosurgeon interests as a whole. In addition, other disciplines (cardiac and neurologist interventionalists, vascular surgeons, radiologists, anesthesiologists, orthopedics, radiation oncologist and plastic surgeons) are progressively invading traditional neurosurgical areas. Reinforcing the role and importance of neurosurgeons in the management of carotid disease, stroke, brain aneurysms, neuro-oncology, pain and peripheral nerves and spine disorders is mandatory, as neurosurgeons would be called if complications occur. In this regard, neurosurgeons may employ their efforts to emphasize to the society (patients included) the importance of having a neurosurgeon engaged in each and every step of patient management.

The COVID-19 pandemic

The SARS-COV2 outbreak was declared a Public Health Emergency of International Concern on January 30, 2020. The SARS-COV2 pandemic certainly has the power to devastate health care systems capabilities, even in developed and powerful countries. This

potential is not only due to the unparalleled outpouring of patients but also due to high infection rate among health care professionals, including nurses and doctors.

Neurosurgical care has been evidently impacted by the effects of the policy of the SARS-COV2 responses. Elective surgical procedures have been reduced, with consequences difficult to estimate. Neurosurgeons have lost autonomy in their clinical decisions due to these unprecedented matters. Often, these issues include working outside their area of expertise, large restrictions of resources, new ethical impasses, exposition to the moral injuries, medicolegal risks and pecuniary uncertainties.

The impact on neurosurgical training has been difficult to estimate and overcome globally, particularly for residents in their last years of formation. This fact may have long-term consequences difficult to predict. Long term consequences of SARS-COV2 disease are by themselves a relevant issue. No one knows yet how this new virus infection may impact health in general and the nervous system in particular in the long run. On the other hand, we have witnessed the high pedagogic efficacy of distance-learning tools. In some way, SARS-COV2 pandemics may have changed forever the way we will carry out neurosurgical meetings in the future.

Technological Disruption

The modern world has been confronted by a large amount of technological disruption with significative consequences. Society altogether has been profoundly impacted, culturally and economically. The power of software and algorithms is everywhere. Quick advances in neurosurgical knowledge and technology are setting increased burden on neurosurgeons to cope with a great deal of information, with high levels requirements for continuous learning and improvement of skills which are time and resource consuming. It is uncertain how telemedicine, for instance, will impact medical care and reimbursements in the near future. These facts have created a scenario that may have a negative impact on professional comportment. As a result, it has been increasingly complex to fulfill professional and ethical duties to the civil society and patients.

The roles of the neurosurgical societies

In this complex and continually evolving environment, our capabilities to deliver adequate response have been overwhelming tested. Neurosurgeons as individuals are incapable to deal properly with this sphinx. If we are not able to identify these challenges and cope with them properly, we may perish. The best way to deal with these complex problems is to combine our efforts in the neurosurgical societies and work as a team.

Neurosurgical societies must become competent mediators and convince the policy makers that neurosurgery is an important

> OUR FINAL OBJECTIVE IS TO CONSTRUCT A MODERN, PROACTIVE, EFFICIENT, AND RESPONSIVE PROGRAM FOR NEUROSURGERY IN BRAZIL IN ORDER TO MEET THE CHALLENGE OF RESPONDING TO THE DEMANDS OF SOCIETY. ON THE OTHER HAND, THE BRAZILIAN NEUROSURGICAL SOCIETY ACTS TOWARDS INFLUENCING INCREASED REVENUES AND CREATING MEANINGFUL MEDICAL REIMBURSEMENT REFORM. <

surgical discipline for patients, hospitals, and the society altogether. Collaboration and delegation are fundamental to meet this goal.

Proactive work with the civil society is critical in my opinion. Brazilian Society of Neurosurgery is currently working to construct a productive networking within the civil society in order to guide public debate in points in which neurosurgery has interests. On the other hand, we have offered many services, including partnership with solidarity initiatives and commitment in educating the lay public.

In addition, professional defense strategies including partnership with Brazilian Justice system have been built. Brazilian Neurosurgical Society will serve as a referee in cases judges understand necessary. Actions that goals to optimize the reimbursements of neurosurgeons have been employed as well. New codification for neurosurgical procedures and serving as interlocutor between the neurosurgeon and health care insurance companies to help to solve disputed cases are examples of these strategies. Our final objective is to construct a modern, proactive, efficient, and responsive program for neurosurgery in Brazil in order to meet the challenge of responding to the demands of society. On the other hand, the Brazilian Neurosurgical Society acts towards influencing increased revenues and creating meaningful medical reimbursement reform.

Neurosurgeons as individuals and neurosurgical societies as a team must work routinely recalling that neurosurgery is a vibrant surgical discipline due to our constant commitment to education, excellent patient care, and research. Partnership, creativity, tractability and leadership must be capital features for the neurosurgeons to deal with the complex challenges of this brave new world. 

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Neurotrauma in India – *Progress and Challenges...*

With approximately 2,500 neurosurgeons in India, a curious mind wonders why one from the U.S. is writing this report. In response, a broad overview and a unique perspective may be offered from afar, with an opportunity to observe positive trends. The author has visited over 35 institutions in as many trips to the subcontinent, participating in numerous conferences and various HI efforts.

India, with 1.38 billion people, is the second most populous country in the world and ranks first in the number of road accident deaths across the 199 countries reported in the World Road Statistics, 2018 followed by China and U.S.¹ As per the 2019 Road Accident Report, 449,002 accidents occurred with 151,113 deaths and 451,361 injuries.² Overall, 60% of head injuries in the subcontinent (HI) are due to traffic accidents, 25% are due to falls and 10% are due to assaults.³

Recently, India is on the world stage with significant progress, rapid industrialization, and many opportunities for the growing middle class. However, India's infrastructure (especially transportation) has not necessarily kept up with these rapid changes. Interestingly, in 1970, there were 1.14 vehicles/km of roads, and in 2018, that number has increased to 43 vehicles/km; unfortunately, without the corresponding increase in infrastructure.¹

The Neurosurgery community is keenly aware of India's dubious #1 ranking globally for HI fatalities, and has mobilized aggressively to improve the situation. Currently, two major national organizations,

the Neurotrauma Society of India (NTSI) and the Neurological Society of India (NSI) are focusing on this effort, aided by the Central government, several state governments, various non-governmental organizations (NGO's) and charitable trusts. Visible progress is being made, with expectations of improved statistics in the future.

Publications to document progress in HI management and outcomes are increasing annually, with gradual improvement in various areas.³ Several pockets of experience and expertise are identified (mostly using education and communication) with some states reporting a 2% decrease in incidence, but still a few others show slight increase in occurrence.⁴ Health care in India is managed on a statewide basis that adds other complexities, similar to discrepancies with COVID-19 testing and vaccine distribution in the U.S.

Neurotrauma issues in the subcontinent are multi factorial, but can be divided into four major components; 1) Awareness and Prevention, 2) Pre-hospital care, 3) In-hospital care, and 4) Neuro-rehabilitation. These will be discussed in further detail below.

Of these, primary attention to #3 (In-hospital care) has yielded significant progress with improved facilities and training, as expected since this is mostly managed by neurosurgeons. Fortunately, the Indian neurosurgical community is quite knowledgeable about HI, both by personal experience and worldwide literature. Naturally, internal variations in tertiary care management occur due to technology and



support systems. However, the basic tools and expertise for managing head injuries are available at most institutions.

With respect to #2 (Pre-hospital care), local and state governments have made decent improvements, specifically initial management training and transport of HI victims. Most states contract ambulance services (dial 108, similar to US 911) with vendors offering rapid dispatch capabilities. Currently, Emergency Management and Research Institute (GVK-EMRI), is the nation's largest ambulance service operating in 17/28 states, and offering training for first responders.

Recent data suggest that 55% of injuries occur on national or state highways (comprising about 6% of total roads), targeting an opportunity for rapid improvement. The National government is

setting up local trauma centers every 100 km of highways with specific training and educational programs. Multiple training opportunities for ambulance technicians and paramedics are now available to help fill the thousands of vacancies.⁴

Awareness and prevention (#1 above) are receiving increasing attention with media exposure regarding helmet usage (two-wheeler accidents are extremely common in Southeast Asia). Other campaigns include seatbelt usage and avoiding texting or drinking while driving. In 2018, the Ministry of Transportation identified 5,583 black spots (areas of high accident rates) in the country and rectification efforts have begun (accidents decreased by 3.86 % in 2019, and mortality decreased by 0.20 %). Unfortunately, the study notes slight increase of 0.8% in the 50 cities with a population of a million or more.^{2,4}

Various NGO's supported by local and national governments have undertaken a variety of publicity campaigns on television, social media, radio, movie theaters, print media and calendars with road safety messages in multiple languages. Educational seminars and exhibitions on road safety (including safe driving coaching institutes) are being implemented with targeted messages for school children, pedestrians, two- and four-wheeler operators, and heavy vehicle drivers. These efforts are gaining popularity with some measure of success.

The final concept #4 (Neuro-rehabilitation) in India is still somewhat lacking with only a few centers offering high-level, coordinated post-injury care. Recently, tele-rehabilitation centers are offering education, easy access with limited care, since local service labor is more readily available in India (for routine exercises and activities of daily living). Although recent efforts are increasing, structured and organized physical medicine and cognitive rehabilitation centers are limited; this is an area poised for progress.

India's lack of routine private health insurance coverage is yet another hurdle that makes tertiary care and long-term management somewhat challenging. However, this is now gaining popularity over the last five to seven years with various health insurance schemes at the state and national levels (mostly governmental plans). The general public is able to afford medical care for acute and complex health issues, prompting many private hospitals to offer trauma care.

Although recent improvements are noted, initial stabilization and rapid timely transport to the nearest tertiary care facility is still not occurring routinely. A preliminary pilot study identified only 45% of HI victims were transported by ambulance, and about 50% of the patients traveled over 50 km (20% over 100 km).⁵ These inefficiencies are being addressed with a more concerted effort using education, effective communication and more accessibility of no-cost 108 ambulance services.

Since health policies differ at the state level, provision of a unified HI guidelines may improve the situation in India. A nationally accepted basic management scenario will help standardize the initial management by non-neurosurgical clinicians. Neurosurgical guidelines may improve utilization of the golden hour (perhaps initial two to three hours) and help decrease morbidity and mortality of severe HI. Over time, uniform delivery systems can be anticipated with guidelines improving communication and education—to this effect, the NTSI and NSI are preparing to launch the first Indian specific HI guidelines in the near future (personal communication).

Although most difficult in such a huge country with a massive population and variations in health care delivery, a national trauma registry (big data) would be of paramount importance to affect positive changes. Accordingly, the ministry of transportation has launched the Integrated

Road Accident Database (IRAD) project to create an accurate road accident database management system to compile data regarding road accidents, analyze root causes and implement required interventions.^{4,6}

Conclusion: Faced with a serious national crisis, the neurosurgical community has made significant progress over the past five to 10 years, mainly by offering education, increasing awareness, and improved understanding of the head injury problem in the subcontinent. Most factors are societal, requiring a multi-faceted approach to alter India's dubious distinction of being #1 for HI deaths in the world. Certainly, there are many pockets of expertise and excellence, and a calculated methodical approach to HI will soon be realized. It is with this hope and enthusiasm that we await improved data to show a reduction of India's burden.

The author is grateful for the privilege of writing on a most important issue. ❏

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Cultivating Global Neurosurgery Education for Residents

Global neurosurgery has gained significant interest over the past decade but disparities in access to basic neurosurgical care remains a global dilemma

Training and education for global neurosurgical practice is not formalized or standardized in the United States

A cohesive, unified approach to global neurosurgical curriculum for residents that includes public health concepts should be developed

Early and frequent international travel is not mandatory to begin training; however, strong mentor relationships and a firm grasp of public health research principles are critical

During the COVID-19 pandemic over the past year, the neurosurgical community has experienced the substantial impact public health can have on academic and private surgical practices. The fundamental tenants of public health are part of basic medical curriculum in the United States; however, few within our community have obtained an understanding of public health as it applies to neurosurgical practice. As we look to the next generation of neurosurgeons, it is imperative that we continue to promote and encourage young trainees to seek out public health education and research opportunities. Global neurosurgical education relies upon these principles and below we highlight possible solutions to help reduce the burden of unmet neurosurgical disease

Currently, most neurosurgical residency training models lack a comprehensive global neurosurgical education. Residents need a training framework in order to contribute to sustainable and ethical efforts in global neurosurgery. By definition “global neurosurgery” is the practice of neurosurgery with the primary purpose of delivering timely, safe, and affordable neurosurgical care to all who need it.”¹ Although many neurosurgical training programs have independent opportunities for residents to complete international rotations and take part in research, no unified approach has been developed. In their role as clinicians and as physician-scientists, residents should receive a more international focused understanding, beyond the daily management of neurosurgical conditions.

These include, but are not limited to, the national or global burden of the most common neurosurgical diseases, large scale public health initiatives, and international organizations influencing organized global neurosurgery activities. In order to meet the United Nations 2030 Sustainable Developed Goals,² we must identify more concrete targets to raise the standards of care provided in the international surgical ecosystem. Global neurosurgery has already cultivated interest groups domestically and internationally at all levels of training, but a unified fundamental curriculum is necessary.

Starting early in training is critical. It is important to recognize that global neurosurgery training does not necessarily mandate early and frequent international travel. Organized neurosurgery and training programs could foster lectures and courses for residents as a foundation. More focused educational content could include basic epidemiology and relevant global health and health services research methodologies. Further fortifying this knowledge base requires regional and sub-specialty specific issues. For residents with a greater interest, formal international rotations with scientific objectives and merit could be further augmented. These rotations can be operative but founded in a scientific objective if we hope to make more sustainable contributions to neurosurgical care internationally and move the needle towards achieving the 2030 UN Sustainable Development Goals. For residents with a career interest in global neurosurgery, creating formal mentor relationships

with research faculty in neurosurgery and outside experts in public health is crucial. In programs with dedicated and protected research time, residents should be encouraged to engage in formal public health training (seek advanced graduate degrees or certificate programs) and ideally identify longer term on the ground international research endeavors with clear scientific goals. Ideally all these international efforts can be coordinated across institutions and monitored and evaluated so that we have the greatest potential of creating more sustainable change.

Neurosurgery has a long-celebrated legacy of pioneers who have made significant contributions to global health. Residents have gravitated toward these institutions and mentors over the years and the global neurosurgical workforce has grown. However, 13.8 million essential neurosurgical cases develop each year, 80% of which occur in low- and middle-income countries.³ This disproportionate disease burden is further accentuated by health care disparities in that 5 million individuals who suffering from treatable neurosurgical conditions will never receive a therapeutic surgical intervention.³ Understanding these health care disparities as they pertain to country specific contexts around the world is a key component to comprehensive global neurosurgical education. We, as a neurosurgical community, must be opportunistic and cultivate resident interest in global neurosurgery. Supervised international opportunities foster this interest but creating an educational

curriculum for the mission of improving global neurosurgical care is imperative. Beneficial in many ways, international perspectives and experiences fortify neurosurgical knowledge, foster quick adaption, and cultivate creative solutions for neurosurgical care everywhere. As the COVID-19 pandemic has demonstrated, we are more connected than ever imagined. Neurosurgeons should continue to push this virtual educational frontier and assemble more refined practical and scientific objectives to help cultivate responsible global neurosurgeons targeting care for some of the most vulnerable populations on the planet. 

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Global Neurosurgery: The Harvard Program in Global Surgery and Social Change Experience

Only as recently as 2015 was surgery established as a global health priority. The Lancet Commission that year released its Global Surgery 2030 instrumental report on the tremendous lack of surgical care globally and the need for a focus on addressing this issue: 5 billion people do not have access to safe and affordable surgical and anesthetic care, 143 million additional surgeries are needed each year, and 33 million people face catastrophic health expenditure each year due to payments for such care.¹ When it comes to surgical subspecialties such as neurological surgery, access to care goes from being a disparity to a complete absence in some cases. Large areas of the world, especially low and middle-income countries (LMICs), suffer ratios of one neurosurgeon for every 10 million people, in which case access to neurosurgical care is no longer a right but a luxury.² To address this need, multiple individuals, academic institutions, non-governmental organizations (NGOs) and government agencies have worked to improve access to safe and affordable neurosurgical care, including the Duke Global Neurosurgery and Neurology program working with the Mulago National Referral Hospital in Uganda³, the Weill Cornell Tanzania Neurosurgery Project⁴, CURE Children's Hospital of Uganda³, and the Virtue Foundation in Mongolia⁵. In order to expand upon these efforts, the next generation of global neurosurgeons must be trained in the public health aspects

> WHEN IT COMES TO SUBSPECIALTIES SUCH AS NEUROLOGICAL SURGERY, ACCESS TO CARE GOES FROM BEING A DISPARITY TO A COMPLETE ABSENCE IN SOME CASES...ESPECIALLY LOW AND MIDDLE-INCOME COUNTRIES SUFFER RATIOS OF ONE NEUROSURGEON FOR EVERY 10 MILLION PEOPLE, IN WHICH CASE ACCESS TO NEUROSURGICAL CARE IS NO LONGER A RIGHT BUT A LUXURY. <

of neurosurgery that are critical to the sustainable development goals detailed by the World Health Organization in WHA 68.15 at the 68th World Health Assembly.⁶ To that end we present the training experience of two research fellows working in the Global Neurosurgery Initiative (GNI) at the Harvard Medical School Program in Global Surgery and Social Change (PGSSC).

The Training

The PGSSC Paul Farmer Research Fellowship (<https://www.pgssc.org/>) is a unique two-year training opportunity for residents in surgical, obstetric/gynecology, and anesthesia (SOA) specialties. With faculty who led the Lancet Commission on Global Surgery, our education is focused on public health research, implementation science, and policy/advocacy efforts to improve safe, affordable, and timely access to SOA care. With colleagues from multiple specialties and different areas of expertise, as well as

projects all around the world, we are exposed to multiple perspectives that provide a broad understanding of the obstacles to and importance of equitable access to care for all. Accompaniment is an important aspect of the program as being a leader means understanding and elevating local voices and building capacity based on local priorities, and social justice and equity is emphasized as a cornerstone of health care.

Our Experience

The usual PGSSC experience was completely changed when COVID-19 impeded our ability to travel and collaborate with partners. However, it has still been an extremely educational and productive year. Through the use of Zoom, we have been able to remain connected with colleagues and partners, build a community, and work with neurosurgeons, neurosurgery residents, and medical students around the world who all have a passion for improving access to neurosurgical care for all.

Beyond the education we receive in public health, biostatistics, implementation science, and policy/advocacy, we have had the opportunity to lead a varied multitude of projects. Our research projects include a broad range of topics such as developing a sustainable mechanism to tabulate the global neurosurgical workforce indicator, studying the barriers to access and costs of training neurosurgeons, determining the out-of-pocket costs for patients of essential neurosurgical procedures, and ascertaining the suitability and sustainability of donated neurosurgical equipment in low-resource settings. All of our projects are intended to yield data that can be directly used for policy and advocacy efforts to improve neurosurgical capacity. We are also launching a new journal for Global Neurosurgery with a focus on equitable open-access for all and research capacity building through accompaniment. We have had the unique opportunity to join the Secretariat of the World Federation of Neurosurgical Societies Global Neurosurgery Committee, and work alongside neurosurgeons with decades of experience in the field toward a common goal of universal equitable access to neurosurgical care. To do this, we have coordinated the efforts of neurosurgeons in multiple countries to develop local context-specific goals and strategies for improving national neurosurgical care. We have worked with funders to advocate for training and research grants targeted at neurosurgery trainees from LMICs in order

to provide opportunities for and bring to the table those who have historically not been able to afford to do so. We have successfully interfaced with and mentored young, burgeoning global neurosurgeons from all over the world. These and multiple other projects have been enlightening and satisfying as we continue to expand our knowledge of the complex health systems required to provide surgical care as well as the multitude of ways to address the issues.

Beyond the opportunity to be a part of these exciting initiatives, PGSSC has provided a unique experience to grow not just academically but personally. The breadth and depth of experiences of colleagues in the program creates a diverse group of incredibly accomplished individuals from every walk of life. With the growing awareness of racism and its connection to the structural violence seen in global health around the world, it is more important than ever that we are continuously asking who is not at the table, and with social change a priority of the PGSSC, we are taught to always hold social justice and equity as a beacon for us to strive for in all facets of our work.

Conclusion

Training future leaders in neurosurgery requires us to look beyond the operating room, and to consider the public health aspects of neurosurgery that affect our patients' access to care and our ability to provide safe, affordable, timely, and

equitable care. This is vital to Global Neurosurgery as we come to realize more and more that local is global – improving access to care in local settings is the building block in the foundation for universal access to neurosurgical care. Programs like the PGSSC provide a strong foundation for neurosurgeons from all walks of life to develop the tools needed to address their local issues at home and work synergistically with others to overcome obstacles globally. ❏

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Mercy's Voyage

On the morning of December 26, 2004, just before 8am, a deep undersea earthquake harnessing the power of 550 million Hiroshima bombs propelled a torrent of water at 500 miles per hour toward Sumatra, Indonesia. Within 30 minutes, the waters of the Indian Ocean rose to a height of nearly 100 feet inland. As the tsunami made landfall, a massive volume of ocean water surged over roads, bridges, schools, churches, and homes, overtaking occupants unaware that the tremors felt earlier would foreshadow one of the most catastrophic natural disasters in history. The "Boxing Day Tsunami" would ultimately claim the lives of nearly 230,000 people with millions displaced. One of the survivors was an eight-year-old boy with an open, depressed skull fracture who, within a few weeks' time, would come across a newly-minted neurosurgeon serving aboard USNS Mercy, a U.S. Navy hospital ship on a humanitarian mission providing tsunami relief to the region.

Henry Pallatroni, MD grew up in Massachusetts, and in many ways, his military service is not surprising. His father served in the Army, and his stepfather was a Navy Captain and commanding officer of USS Okinawa. Dr. Pallatroni attended Tufts University School of Medicine on the Navy's Health Professions Scholarship Program (HPSP), and completed his neurosurgery residency at Dartmouth in June 2004. In



Henry Pallatroni, MD

August, he made the long move with his wife and two young children to Okinawa, Japan. Dr. Pallatroni was part of a two-person neurosurgery practice caring for troops stationed in the far western Pacific theater. Only months later, there would be a request from the medical commander aboard USNS Mercy for a neurosurgeon to deploy in support of a massive humanitarian and disaster relief mission in Indonesia.

USNS Mercy, a 69,000-ton oil tanker turned tertiary care hospital transited from its homeport of San Diego, CA to the devastated region. Along with its sister ship, USNS

Comfort, Mercy is one of the largest hospitals in the country if measured by its 1000 hospital bed capacity. With 12 operating rooms and 88 ICU beds, Mercy, whose namesake comes from a rich history of U.S. hospital ships treating combat casualties since the first World War, had been re-purposed for humanitarian missions in modern times. Its tour to the Pacific Ring of Fire tested its mettle. While not a fast mover, its ability to deploy U.S. health care standards and quality anywhere in the world was desperately needed. Its decks served as collaboration centers where a host country's health care providers would work side-by-side with U.S. providers to learn from one another while advancing care. Dr. Pallatroni recalled, "Below the main deck, there was a massive staging area with the ORs and a CT scanner along the sides. The ORs were well equipped. There was no operating microscope, but I brought my loupes. For neurosurgery, it was a very basic set up. They had some donated pedicle and lateral mass screws, a few Kerrisons and Penfields."

Dr. Pallatroni was in good company working alongside over 200 physicians representing 36 states and 55 health care institutions who volunteered for the disaster relief. "It was a good humanitarian mission. People took the opportunity to really help where it was needed." Outside of the medical fields, there were engineers, entomologists, and other professionals with expertise in rebuilding infrastructure



Dr. Pallatroni and his military attaché looking after a young girl with a skull base tumor aboard the Mercy's CT scanner.

including clean water, waste disposal and sanitation, and stemming public health crises such as infectious disease that follow a disaster. "I was assigned a stateroom with three other shipmates- a urologist, general surgeon and orthopedist. There was plenty of comradery. If I wasn't triaging or operating, I assisted with other surgeries like wound debridement and fracture repairs." Many of the medical staff were volunteers through several Non-Governmental Organizations partnered with the Navy. Dr. Pallatroni was the only neurosurgeon aboard Mercy but among the many who had never witnessed such a catastrophe as the tsunami. "There was so much debris and devastation... houses were all destroyed," he recalled. "They had started out with thatched roof huts and no electricity. These were turned to hovels, dirt roads were swept away with garbage everywhere, trees were down, and the little bit of infrastructure they had was gone."

On the small island of Nias, Mercy crew members set up a staging area on the beach to evaluate patients and triage medical emergencies. "There were so many malnourished children around. On our breaks, we would eat MREs (meal ready to eat), to get us through the days. These were packed with calories, and we often shared our meals with the kids." Dr. Pallatroni was accompanied by Indonesian military attaches while triaging on the island, working with dentists who removed rotten teeth, optometrists prescribing glasses which were made onboard Mercy, general surgeons removing goiters and more. He was doing far more primary and wound care than evaluating neurosurgery pathology. When he was introduced to the eight-year-old boy, a soiled head wrap covered the child's deep scalp laceration that betrayed an underlying depressed skull fracture. A tree limb had fallen on his head. Alongside his large family, Dr.

Pallatroni made the call to operate. The next morning, the boy and his mother boarded a U.S. Navy SH-60 Seahawk helicopter and were airlifted to Mercy for a CT scan followed by debridement, elevation of the skull fracture and closure of the complex laceration. "Those were the only kinds of operations you could do on the ship- one and done with a low chance of infection. It wasn't the ship's capabilities that limited our surgeries but the aftercare when we left." In fact, he met Indonesians afflicted with hydrocephalus after tuberculosis meningitis and spine deformities who he could not help for this reason. He remembered a young girl, about six or seven years old, diagnosed with a skull base tumor causing facial deformities, eroding through the nose into ethmoid, frontal sinus and frontal fossa. Along with an oral maxillofacial surgeon onboard the ship, they arranged for her transfer to a large tertiary medical center in Jakarta for treatment.

When reflecting on his experience, Dr. Pallatroni said, "On one hand, I felt helpless and disappointed. I wished I could do more. As a doctor, it gave me perspective of how lucky we are as neurosurgeons to do what we do with the resources we have. As an individual, it makes you realize how lucky you are not to have experienced something like that with your family." Of the work that he and others did during his deployment, "I was very proud of what we were doing. It speaks well for our country...it shows the power of our military to do good, using our knowledge and technology for good to help others." ❏



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The Foundation for International Education in Neurological Surgery:

Supporting neurosurgical education to expand neurosurgical service delivery worldwide

The Foundation for International Education in Neurological Surgery (FIENS) is one of the oldest international neurosurgery organizations. Since its creation in 1969, FIENS has helped increase neurosurgical service delivery in underserved populations worldwide. Historically, the foundation focused on direct service delivery in underserved areas and increasing access to safe and quality neurosurgical care by supporting the development of local training programs in these regions. More recently, through the generous donation of philanthropists, FIENS has established the Clack and Bassett Fellowships. These fellowships provide financial support allowing neurosurgical trainees from the developing world to either complete their training in their local environment (Clack) or augment their training by visiting training programs in North America.

To date, the Foundation has supported the training of 23 neurosurgeons in neurosurgery programs via these fellowships. FIENS Clack and Bassett fellows have been hosted by multiple participating institutions, including Duke University (Durham, NC), Henry Ford Health System (Detroit, MI), Indiana University (Indianapolis, IN), Rady Children's Hospital (San Diego, CA), University of Cape Town (Cape Town, South Africa), and University of Wisconsin (Madison, WI). The impact of these opportunities is best illustrated in their own words:



"During my observership at the University of Wisconsin, I witnessed cases that were not performed at my hospital in Uganda. I also met my mentor, Dr. Bermans Iskandar, a pediatric neurosurgeon at the University of Wisconsin who helped me get a formal pediatric neurosurgery fellowship at the Hospital for Sick Children (Toronto, Canada). These experiences have helped me build my practice in Uganda."

– Juliet Sekabunga Nalwanga, MD (2017 Bassett Fellow, Uganda)

Figure 1: Dr. Juliet Sekabunga Nalwanga,
2017 Bassett Fellow, Uganda



"I am a Zambian trainee at the University of Cape Town, South Africa. I joined the program with the understanding that my government would fund my residency as a part of their human resources for health strengthening. Unfortunately, the government funding did not come through. I was on the verge of quitting my training due to financial constraints when my mentor, Professor Graham Fieggen, helped me apply for and get the FIENS Clack Fellowship. Thanks, to FIENS' financial support, I will be graduating this year. Without this crucial support from FIENS, my country, Zambia, would have lost a neurosurgeon. I will emulate the generosity of the FIENS donors and members. I will be returning to Zambia by the end of this year to deliver neurosurgical care to those who need it the most."

– Manyando Lubasi, MD (2019 Clack Fellow, Zambia)

Figure 2: Manyando Lubasi, MD,
2019 Clack Fellow, Zambia

As an extension of the fellowship, FIENS has organized a bi-monthly global visiting professor webinar series hosted by past Bassett and Clack fellows (**Table 1**). The themes are chosen based on the fellows' preferences and the visiting professor's expertise. Also, the webinars are scheduled to maximize the attendance and participation of fellows and partners irrespective of their time zones.

Table 1: FIENS 2021 Global Visiting Professor Webinar Series Schedule

Month	Host	Visiting Professor
January	Ignatius Esene (Cameroon)	Robert Dempsey (USA)
March	Juliet Sekobunga	Gail Rosseau (USA)
May	Su Myat Mo (Myanmar)	Jack Rock (USA)
July	Adefisayo Adekanmbi (Nigeria)	Raji Mahmud (Nigeria)
September	Mian Awais (Pakistan)	Tariq Khan (Pakistan)
November	Ahmed Hussein (Egypt)	Mahmoud Qureshi (Kenya)

FIENS is equally supportive of the development of neurosurgical training programs in low- and middle-income countries (LMICs). The Foundation has partnered with growing programs and their stakeholders to identify and overcome barriers to neurosurgical residency training. For example, in Sudan, the Foundation has partnered with the Sudanese American Physicians Association (SAPA) to support the growth of a local training program in the capital, Khartoum. Part of the partnership includes FIENS participation on a monthly basis during the departmental conferences. Clinical, administrative, operational, and educational issues are discussed. During the first part of each webinar, Sudanese faculty and trainees share their experiences, difficulties, and successes in the administration and growth of their program. During the second part, the FIENS faculty give a lecture on a topic requested by the department of neurosurgery in Khartoum. Finally, the Sudanese residents and attendings share a case and discuss a case with attendees.

Work on these initiatives is satisfying for FIENS volunteers, giving individual neurosurgeons an opportunity to impact the lives of trainees, patients, and

national health systems. Access to timely and effective essential and emergency neurosurgical care remains limited in most LMICs, primarily due to a workforce deficit.¹ Recent studies demonstrate an enormous untreated neurosurgical burden of disease.^{2,3} It is estimated that 17.6 million patients in LMIC require neurosurgical procedures and over 34% of LMICs have an insufficient neurosurgical workforce.^{4,5} FIENS welcomes new volunteer neurosurgeons and neurosurgical training programs that aim to improve neurosurgery worldwide. Current opportunities for participation in FIENS programs include:

- Give a lecture as a FIENS Global Visiting Professor;
- Educate a funded Bassett Global Neurosurgical Fellow at your institution;
- Become a member of "Friends of FIENS" or serve on the Board of Directors.

For further information about opportunities with FIENS, contact Dr. Gail Rosseau at grosseau@gwu.edu. 

Acknowledgments

We wish to acknowledge [Stephanie Schuessler](#), [Ravneet Kaur](#), and [Linda Van Brocklin](#)

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Ulrick S. Kanmounye, MD

Nathan A. Shlobin

Contributions of G4 Alliance member neurosurgical organizations to global neurosurgery advocacy

In April 2015, the Lancet Commission on Global Surgery (LCoGS) published its seminal report on the global burden of surgical diseases.¹ The LCoGS documented that two-thirds of the world's population lacked access to essential and emergent surgical, obstetric, trauma, and anesthetic (SOTA) care and that 33 million people faced catastrophic health expenditures associated with SOTA care.^{1,2} In May 2015, the World Health Organization (WHO) passed resolution WHA 68.15 on strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage (UHC).^{3,4} Zambia led the motion and secured the support of all 194 member states. Upon signing this motion, the member states committed to increasing access to safe, timely, and affordable surgical care.

These events have shaped current global surgery policy and advocacy. Advocacy plays a vital role by providing education and raising general awareness among stakeholders, and also by unifying the various interests that will necessarily compete for limited resources, now and in the future. The needs of surgical patients are numerous, varied, and of the highest importance. Strategies that meet these needs will be responsive to community leadership, acknowledge a heterogeneous and pluralistic global health environment, and channel knowledge and resources towards inter-collaborative efforts.

A group born from the global surgery efforts on behalf of Surgical, Obstetric, Trauma, and Anesthesia (SOTA) care is the

G4 Alliance (**Figure 1**).⁵ As of 2021, the G4 Alliance has nearly 70 member organizations working in more than 160 countries, seven of which have a neurosurgical focus or are led by neurosurgeons: the World Federation of Neurosurgical Societies (WFNS), the Foundation for International Education in Neurological Surgery (FIENS), Cure International, Korle-Bu Neuroscience Foundation, ThinkFirst, Northwest School of Medicine of Peshawar, Pakistan and Spina Bifida & Hydrocephalus Care Foundation. In addition, the G4 Alliance has a collaborative partnership with InterSurgeon.



Figure 1: Ruben Ayala, MD, G4 Alliance President, at the 2020 Annual Meeting in Manila, Philippines

Robert J. Dempsey, MD, Chair of FIENS says his organization is proud to participate in the G4 Alliance. "The G4 Alliance provides a common voice for FIENS and other neurosurgical programs to work with related specialties for the education of the

next generation of surgeons worldwide. Such a collaboration is essential to improving and expanding global health systems." Continues FIENS Board member Sarah Woodrow, MD, "Over five billion people lack access to essential surgical care. This results in millions of lives lost unnecessarily with vast economic damage to struggling economies. FIENS' participation in The G4 Alliance allows neurosurgeons to collaborate with others in global surgery to close that gap for the benefit of all." (**Figure 2**)



Figure 2: Sarah Woodrow, MD, FIENS Board member teaching rounds at Black Lion Hospital, Addis Ababa, Ethiopia.

InterSurgeon, designed by pediatric neurosurgeons James Johnston, MD, and William Harkness, MD, is a UK nonprofit, running an online surgical platform to "lower the barriers to information access and facilitate global surgical partnerships" between high-income country users and their colleagues in low- and middle-income countries.⁶ InterSurgeon users hail from all surgical specialties.

The WFNS is the largest professional organization in neurosurgery, representing five continental societies, 130 member countries, and over 45,000 neurosurgeons worldwide. Founded in 1955 to foster international collaborations between neurosurgeons,⁷ the WFNS has assisted continental and national societies in efforts to increase access to neurosurgical



Sarah Woodrow, MD, MED, FRCS(C)



Kee B. Park, MD



Suzanne Tharin, MD, PhD



Natalie E. Sheneman



Robert J. Dempsey, MD, FACS



Gail Rosseau, MD

care, identifying neurosurgical inequities worldwide through its Workforce Mapping and Neurosurgical Capacity and Access Projects.^{8,9} The society has equally led advocacy efforts at high-level meetings, including the United Nations and WHO General Assemblies. (Figure 3).



Figure 3: Gail Rosseau, MD, WFNS-WHO Liaison Committee at the G4 Alliance 2020 Annual Meeting

In 2019, the WFNS created a Global Neurosurgery Committee to “coordinate the efforts of neurosurgical societies worldwide in improving access to timely, affordable, quality neurosurgery.” This committee has developed a global action framework built on five pillars (the 5 As): amplify access to neurosurgical care, align all global neurosurgery activities, advance relevant research, assimilate neurosurgical capacity, and advocate for universal health coverage. This committee is co-chaired by Abdesamad El Ouahabi and Kee Park (Figure 4).



Figure 4: Kee Park (Left) and Abdesamad El Ouahabi, co-Chairs of the WFNS Global Neurosurgery Committee

The ThinkFirst Foundation was founded jointly by the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS) in 1986, to “prevent brain, spinal cord, and other traumatic injuries through education, research, and advocacy.” ThinkFirst PC Representative Suzanne Tharin, MD, PhD, reports, “ThinkFirst’s prevention resources, such as education modules, newsletters, press releases, and scientific publications, are useful to other PC members and ThinkFirst benefits from contact with global injury prevention advocates.”

Conclusion

The global neurosurgery community’s success can be attributed to several factors. First, neurosurgery organizations such as WFNS, FIENS, and ThinkFirst have decades of experience advocating for improved neurosurgical care. Next, neurosurgeons are vocal and active in positions within global surgery organizations to advocate for safe and affordable neurosurgery. Neurosurgeons and neurosurgery organizations are working to strengthen surgical systems in underserved communities and expand access to care. Finally, neurosurgeons recognize the need to collaborate with other stakeholders to advocate for timely access to affordable and safe surgical care worldwide. ■

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In memoriam of Dr. William Harkness, 1955-2021, co-founder of InterSurgeon, powered by the G4 Alliance

FOUNDATION UPDATE



CNS
Foundation

Dear Colleagues,

We want to thank you again for your ongoing support of the CNS Foundation and its mission in 2021. We continue to be grateful and inspired by your individual contributions to our new programs, some of which are outlined in the following update, as well as in our core initiatives. Of special interest to this issue of *Congress Quarterly* is our International Philanthropy fund, which aims to close the gap in worldwide neurosurgical knowledge and service through educational opportunities and collaborative support. The interview with Dr. Alexis Morell on page 25 offers a great illustration of the impact of our International Philanthropy fund.

As always, it is an honor for us to serve you and your patients in philanthropy.

With Sincerest regards,



Elad Levy

Elad I. Levy, MD, MBA
Chair, CNS Foundation



Alex Khalessi

Alex Khalessi, MD, MBA
Vice Chair, CNS Foundation

CNS Foundation Funds New K12 Webinar Series Begins March 8th

The CNS is proud to announce a webinar series highlighting neurosurgeon-scientists who have been supported through the Neurosurgeon Research Career Development Program (NRCDP) that is funded through the NIH and the CNS. The NRCDP is a K12 funding mechanism for early career neurosurgeons designed to support impactful translational and clinical research programs.

“These neurosurgeon scientists are performing research and making discoveries that will impact our field for generations. It is an honor to give them a forum to present their latest insights to our members,” said Maryam Rahman, CNS Education Committee Vice Co-chair.

“This is a terrific addition to the CNS’s robust educational platform. There has been a significant amount of interest in the last few years around neurosurgeon research, particularly what is coming out of the K12 program. Bringing senior surgeon scientists together with the K12 awardees to discuss latest science is certain to be interesting,” said Past CNS President Russell Lonser.

Beginning on March 8, NRCDP awardee, Timothy Lucas, will present his research on Bidirectional Brain Computer Interface for the Restoration

of Grip to provide an overview of cyberphysical strategies for sensory reanimation. Discussion led by Itzhak Fried and moderated by Julie Pilitsis.

This webinar series is funded in part by an Innovative Seed Grant from the CNS Foundation, in support of the Clinical Scientist Career Development Initiative. Please visit CNS.org/Education for the calendar of the entire K12 Webinar series.

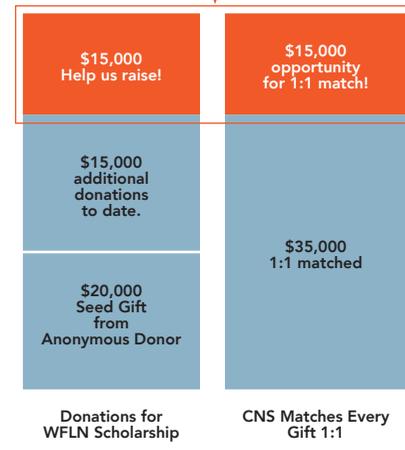
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Pandemic Can't Stop First Recipient of CNS Foundation International Tumor Observership

In three short years Alexis Morell, MD, of Rosario, Argentina, has demonstrated the tenacity that makes for a future leader.

With only ten days before his starting date of a new position in the United States, the Morell family entered the country with a full schedule. In those ten days, he and his wife Maia, along with their two-and-a-half-year-old son, Tomas, and two cats, moved to a new country and quickly organized basic needs such as cell phones, renting an unfurnished apartment, and purchasing a used car from friends. Dr. Morell then drove four hours for the only available opening to sit for his second medical licensing examination, a rigorous 9-hour test well known to US physicians. The following morning, he began onboarding as the new Clinical Research Coordinator of the University of Miami Brain Tumor Initiative.

He reflected on the year leading up to this opportunity. The COVID-19 pandemic only intensified Argentina's existing shortage of resources, including hospital beds. As Dr. Morell continued attending to his most urgent neurosurgical patients, he added critical care training sessions to support the COVID emergency as he continued to prepare for his second medical exam. Meanwhile, his wife, who is an internal medicine doctor, treated COVID patients

daily and regularly had to self-quarantine as many of her colleagues fell sick, some dying from the disease.

Amid all this, the two parents juggled full-time care for Tomas. "Early in the pandemic, if you were caught in public without a special permit as an essential worker, the police would arrest you. Childcare and nannies were non-essential workers. We set up a playground in our tiny apartment for him and did the best we could."

Now in Miami, Dr. Morell has begun working with familiar faces Dr. Ricardo Komotar and Dr. Michael Ivan, his mentors during his three-month CNS Foundation Tumor International Observership in 2018. His appreciation for global connections has only grown. "COVID has shown us that international collaboration is a must."

He is grateful for the big and small things about his family's new life in Florida. His wife will have time to perfect her English before she applies for her own residency. They can now enjoy the neighborhood park with their son.

"He gets to look at bugs and birds and squirrels. He can be a kid again," Dr. Morell said.

"And I am getting to work with great leaders in neuro-oncology." He hopes to continue working on ground-breaking research as well as expand his knowledge of minimally invasive procedures.



Having achieved so much, when asked about new goals he replied, "If your dream is satisfying more patients with better outcomes, then the journey itself is the dream."

The CNS and CNS Foundation congratulates Alexis Morell and looks forward to watching his incredible journey continue. 



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INSIDE THE CNS



Washington Committee Report



Katie O. Orrico, Esq

Washington Committee Sets 2021 Legislative and Regulatory Agenda

The Congress of Neurological Surgeons (CNS) and American Association of Neurological Surgeons (AANS) released their [2021 legislative and regulatory agenda](#), including health policy action items neurosurgeons plan to advance with Congress and the Biden Administration. Organized neurosurgery is pursuing the following priorities:

- **Protect patients' timely access to care** by reforming utilization review practices, such as prior authorization, step-therapy and Medicare's appropriate use criteria program for advanced diagnostic imaging.
- **Improve the health care delivery system** by maintaining existing insurance market reforms and advancing solutions that will lower costs, expand coverage and enhance choice, including establishing network adequacy standards and out-of-network options — with appropriate patient protections for unanticipated medical bills.
- **Support quality resident training and education** by increasing the number of Medicare-funded residency positions and preserving the ability of surgeons to maximize education and training opportunities within the profession's current regulatory structures.
- **Fix the broken medical liability system** by adopting proven reforms that are in place in California and Texas and other innovative solutions.
- **Continue progress with medical innovation** by prioritizing funding for the National Institutes of Health, adopting a *21st Century Cures Act 2.0* initiative to support pioneering medical technology and life-saving therapies and expanding the availability of telehealth.
- **Alleviate the burdens of electronic health records (EHRs)** by achieving interoperability, preventing data blocking, reducing unnecessary data entry and improving the functionality of EHR systems to enhance, not hinder, the delivery of medical care.
- **Restructure Medicare quality improvement programs** by

minimizing the complexity, streamlining and reducing reporting burdens and promoting specialty-specific quality measures, clinical data registries and alternative payment models that clinicians, not the government, develop.

- **Champion fair reimbursement** by improving the Medicare physician payment system — including providing an inflationary payment update, revisiting budget-neutrality requirements and maintaining the 10- and 90-day global surgery payment package — empowering patients and physicians to privately contract fee arrangements and closing the gap in payments between Medicaid and private insurers to reduce access to care disparities.

In a [press release](#) announcing the agenda, Washington Committee chair **John K. Ratliff, MD**, stated that "During these unprecedented times, the AANS and the CNS will continue to encourage policymakers to work together to find bipartisan solutions for our nation's top health care issues to ensure that our patients have timely access to high-quality neurosurgical care."

Neurosurgery Thanks Congress for Additional GME Funding

On Jan. 27, the CNS and AANS joined the Graduate Medical Education (GME) Advocacy Coalition in thanking Congress for expanding Medicare-supported GME in the Consolidated Appropriations Act, 2021 ([P.L. 116-260](#)). The legislation included 1,000 new Medicare-supported GME positions, distributed as follows:

- Teaching hospitals in rural areas;
- Hospitals training residents over their cap;
- Hospitals in states with new medical schools; and
- Hospitals that care for underserved communities.

In the letter, the groups noted that Medicare support for GME had been frozen since 1997. The growing physician shortage and COVID-19 pandemic have "put more pressure on the physician workforce as physicians and providers have mobilized across the country to respond to this public health emergency." While the

U.S. faces a projected physician shortage of between [54,100 and 139,000](#) physicians by 2033, this additional GME funding is a step in the right direction. The groups applauded this effort to increase federal support for GME.

[Click here](#) to read the letter.

Neurosurgery Thanks Congress for Preventing Medicare Cuts

On Feb. 22, the CNS and AANS joined more than 70 groups in thanking the [House](#) and [Senate](#) for including language in the Consolidated Appropriations Act, 2021 ([P.L. 116-260](#)) that prevented steep Medicare cuts. The letter also pointed out that additional action is necessary to address systemic problems with the Medicare Physician Fee Schedule — including the budget neutrality requirement, which results in arbitrary payment cuts. In the letter the groups urged, “Congress to consider additional policy options in the year ahead to address these shortcomings.”

Neurosurgery Urges Funding for National Concussion Surveillance System

On Feb. 2, the CNS, AANS and the Joint Section on Neurotrauma & Critical Care sent letters to [House](#) and [Senate](#) appropriators requesting \$5 million to fund the [National Concussion Surveillance System](#). The groups also joined the National Association of State Head Injury Administrators on a [coalition letter](#) with the same request. Currently, there is insufficient data to accurately estimate the incidence of sports-related concussions in youth and subpopulations of youth. Crucial data is also needed to capture all incidences of concussions due to falls, work-related injuries and recreational injuries across our population. This funding will help support efforts to further knowledge on concussions through clinical and basic science research.

Neurosurgery Endorses Legislation to Permanently Fund CHIP

On Feb. 10, the CNS, AANS and the Joint Section on Pediatric Neurological Surgery endorsed [H.R. 66](#), the Comprehensive Access to Robust Insurance Now Guaranteed (CARING) for Kids Act. Sponsored by Reps. **Vern Buchanan** (R-Fla.) and **Lucy McBath** (D-Ga.), this legislation would permanently extend the Children’s Health Insurance Program (CHIP). Despite widespread support, CHIP remains a temporary program that requires reauthorization every few years, with its current authorization set to expire in 2028.

[Click here](#) to read neurosurgery’s letter endorsing this bill.

Neurosurgery Urges Funding for MISSION ZERO Program

On Feb. 11, the CNS and AANS sent letters to the [House](#) and [Senate](#) appropriators requesting \$11.5 million in funding for the Military and Civilian Partnership for the Trauma Readiness Grant Program. Initially known as MISSION ZERO, the program provides funding to ensure trauma care readiness by integrating military trauma care providers into civilian trauma centers.

Neurosurgery Supports Firearms Safety Research

On Feb. 16, the CNS, AANS, the Joint Section on Neurotrauma and Critical Care and the Joint Section on Pediatric Neurological Surgery endorsed legislation introduced in the [House](#) and [Senate](#) to fund firearms safety and injury prevention research. Introduced by Rep. **Carolyn B. Maloney** (D-N.Y.) and Sen. **Edward J. Markey** (D-Mass.), the Gun Violence Prevention Research Act ([H.R. 825/S. 281](#)) would authorize \$50 million in funding each fiscal year for the next five years for the Centers for Disease Control and Prevention (CDC) to study firearm safety and injury prevention.

Neurosurgery Joins Effort Urging CMS to Improve Quality Payment Program

As part of the effort to improve Medicare’s Quality Payment Program (QPP), the CNS and AANS joined more than 40 national medical organizations in a letter to acting Centers for Medicare & Medicaid Services (CMS) administrator, **Elizabeth Richter**, urging the agency to make significant improvements in the Merit-based Incentive Payment System (MIPS) Value Pathway (MVP) program. The MVP program aims to establish a condition-focused quality reporting option. The neurosurgical societies also joined the American Academy of Orthopaedic Surgeons and American Academy of Physical Medicine and Rehabilitation in asking CMS to revisit the development of a Degenerative Spine Disease MVP. While organized neurosurgery does not necessarily oppose the establishment of MVPs, the CNS and AANS are concerned about the agency’s methodology for measuring quality and costs related to this program.

[Click here](#) to read the coalition letter and [here](#) to read neurosurgery’s letter regarding a spine MVP. 

IMAGES IN NEUROSURGERY

PulseRider Assisted Coiling of a Wide-Necked Basilar Apex Aneurysm

A 61-year-old woman presented with worst headache of life (Hunt and Hess Grade 2 subarachnoid hemorrhage). Diagnostic cerebral angiogram demonstrated a large, wide-necked basilar apex aneurysm (**Figure 1**). The patient underwent primary coiling of the ruptured basilar apex aneurysm, and a residual neck was noted at the end of the procedure (**Figure 2**). The patient made an excellent recovery and was discharged to home on post-procedure day 21 with plans to perform PulseRider assisted coiling of residual aneurysm in six weeks on dual antiplatelet therapy. The PulseRider (Cerenovus, Irvine, California, USA) is a nitinol, self-expanding stent that serves as a scaffold at the aneurysm neck and prevents coil herniation into the parent vessel. The PulseRider stent was deployed in "T" configuration across both posterior cerebral arteries (**Figure 3A**). Coils were subsequently deployed to achieve Raymond Roy Class I aneurysm occlusion with no dome or neck filling (**Figure 3B**). **◀**

Rimal H. Dossani MD, Muhammad Waqas MD, Adnan H. Siddiqui MD
University at Buffalo, Department of Neurosurgery

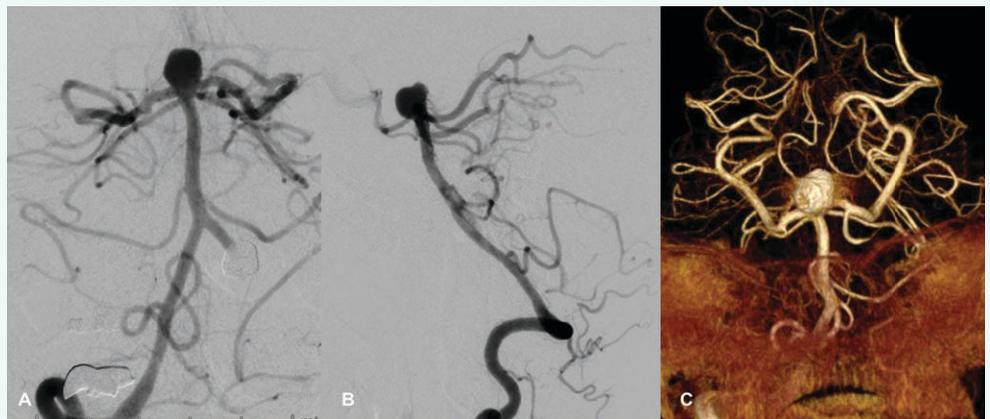


Figure 1: Right vertebral artery anteroposterior (A) and lateral (B) projections demonstrating a large, wide-necked basilar apex aneurysm. 3D reconstruction (C) of the aneurysm shows the wide-necked configuration of the ruptured basilar apex aneurysm.



Figure 2: Right vertebral artery anteroposterior (A and B) projections demonstrating primary coiling of the basilar apex aneurysm with residual neck filling at the base of the aneurysm on the right side.

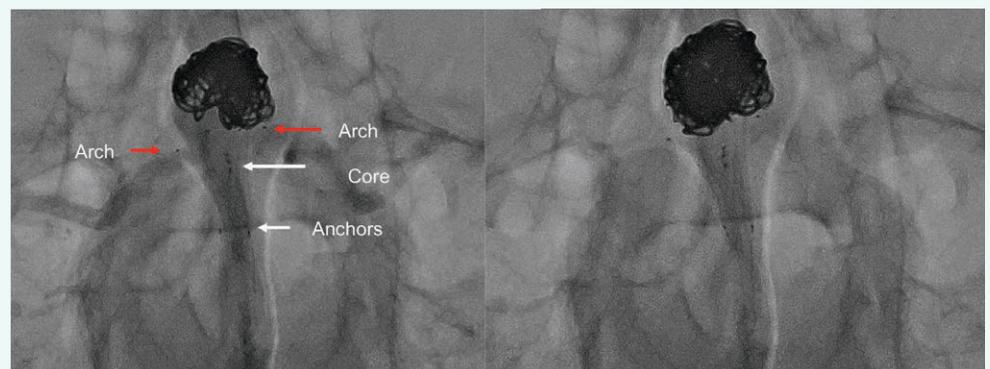


Figure 3: Unsubtracted anteroposterior (A and B) projections demonstrate PulseRider stent deployed outside the aneurysm across both posterior cerebral arteries. The PulseRider stent is made of three parts: the arch, core and anchors (arrows, A). A Raymond Roy Class I aneurysm occlusion was achieved with no dome or neck filling (B).

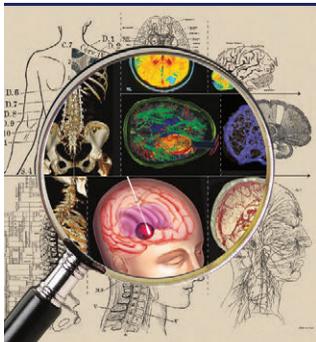


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OCTOBER 16-20, 2021 | AUSTIN, TEXAS

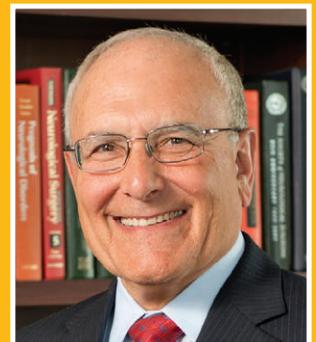
We hope you will take advantage of free registration for CNS members at the exciting 2021 CNS Annual Meeting where you can expect a variety of data-driven science, first-rate speakers, and plenty of collaborative learning opportunities. We are pleased to feature presentations from 2021 Honored Guest William A. Friedman as well as 2020 Honored Guests Bob S. Carter and Mark L. Rosenblum.



William A. Friedman



Bob S. Carter



Mark L. Rosenblum

We will continue to monitor the current health situation and take precautions to help keep our attendees safe.

Visit cns.org/2021 for details on our engaging speakers, incredible educational sessions, networking events, hotel information, and more!

