

CANADIAN MEDICAL STUDENT INTEREST GROUP IN NEUROSURGERY

PROGRESS REPORT 2023

Organizational Tasks and Future Plans

September 2022 – November 2023

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Our Mission

Connect, educate and inspire medical students across Canada of all backgrounds and experiences.

Our Vision

Provide a national platform to promote neurosurgical education, research, mentorship, and advocacy.

CAMSIGN TEAM

Leadership



SAMAN ARFAIE
President and Co-Founder

Saman Arfaie is a fourth-year Doctor of Medicine and Master of Surgery candidate at McGill University (2024). Previous & current research in neurodegeneration, brain tumours, and clinical projects has led Saman to the realization that neurosurgery is his calling. Passionate about the equitable representation of wide talents, Saman is a staunch advocate for diversity. As a co-founder and current president of CaMSIGN, he is excited to be working vis à vis with a dedicated team and embark on the creation of a new chapter for Canadian medical students.

NDONGO SONFACK DAVAINE JOEL
Chief of Operations & French-speaking Ambassador



Ndongo Sonfack Davaine Joel is a third-year medical student at Laval University. Passionate about neuroscience and surgery, he joined CAMSIGN to be surrounded by students who, like him, share the same ambitions. As the French-speaking ambassador, Davaine is enthusiastic about the idea of bringing together French-speaking and English-speaking students around the same passion, which is neuroscience.



ABRAR AHMED
Chief of Operations

Abrar Ahmed is a third-year Doctor of Medicine candidate at the Schulich School of Medicine at the University of Western Ontario (2025). He is passionate about neuroscience, especially the basic sciences (neurodevelopment, epilepsy, stroke, and neuro-oncology). He has a genuine interest in having a career in neurosurgery. Abrar is excited to help CaMSIGN grow as an organization through collaboration and writing.

CAMSIGN TEAM

Media Team



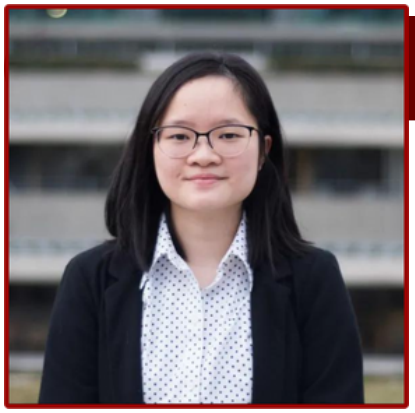
BENYAMIN ZARGAR
Media Team Lead

Benyamin Zargar is a second-year medical student at Deakin University, Australia. He received his Bachelor of Science (Health Sciences with a History minor) from Simon Fraser University. He is passionate about knowledge translation, research in neuro-oncology, and epigenetics of chronic diseases. As CaMSIGN's media team lead, he is excited to be part of this initiative and assist with ease of web access.

FARBOD NIAZI
Social Media Manager



Farbod is a first-year medical student at the University of Montreal. Passionate about neurosurgery since a very young age and eager to make a meaningful impact to inspire fellow medical students, Farbod has taken on the role of social media director in CaMSIGN. In this position, he strives to effectively communicate the wonders of neurosurgery to his peers while fostering a supportive community of like-minded individuals.



CRYSTAL MA
Internal Communications Officer

Crystal Ma is a third-year medical student at the University of British Columbia. Crystal joined CaMSIGN to learn and work with colleagues equally passionate about the field of neurosurgery. She hopes to work together with Canadian medical students across the country and the CaMSIGN team to create exciting and informative events for other medical students interested in neurosurgery.

SINA ZAMIRI
Graphic Designer



Sina Zamiri is a senior undergraduate student at the University of Toronto studying Cell and Molecular Biology. He is passionate about the neurobiology of neurotrauma, neuro-oncology, and neurodegenerative diseases. He is excited about using his creative skills as a graphic designer to assist CaMSIGN in fulfilling its vision.

CAMSIGN TEAM

Education Team



RETAGE AL-BADER
Education Co- Lead

Retage is a third-year medical student at Western University with a passion for neurosurgery. She enjoys finding creative and productive ways to engage with students to support them with their learning goals by sharing opportunities, resources, encouragement, and mentorship.

ZAANJANA ZIVAARIA
Education Co- Lead



Zaanjana is a second-year medical student at the University of British Columbia (2026). She is passionate about neuroscience and surgery, and joined CaMSIGN with the goal of learning and collaborating with other students who share similar interests. Zaanjana is excited to contribute to CaMSIGN's educational platform!

Contact Us!

info@camsign.ca

ADVISORY BOARD COMMITTEE

Faculty Members



DR. ROLANDO DEL MAESTRO

MD, PhD, FRSC, FACS, DABNS
Professor (Emeritus), Dept. of Surgery
McGill University
Director, NeuroSim



DR. SUNIT DAS

MD, M.A, PhD, FAANS
Professor, Dept. of Surgery
University of Toronto
Neurosurgeon- Scientist, SMH, SickKids



DR. MOJGAN HODAIE

MD, MSc, FRCSC
Professor, Dept. of Surgery
University of Toronto
Staff Neurosurgeon, TWH



DR. MOSTAFA FATEHI

MD, MSc, FRCSC
Division of Neurosurgery
University of British Columbia
Staff Neurosurgeon, VGH

ADVISORY BOARD COMMITTEE

Residents and Fellows



DR. NICHOLAS SADER

MD, MSc, FRCSC
Pediatric Neurosurgery Fellow
Children's Hospital Los Angeles
University of Southern
California, Los Angeles



DR. JENNA SMITH FORRESTER

MD, MSc, PGY-4
Neurosurgery Resident
Dalhousie University,
Halifax



DR. JASLEEN SAINI

MD, PGY-2
Neurosurgery Resident
University of Toronto,
Toronto



DR. MOHAMMAD S. MASHAYEKHI

MD, PhD, PGY-1
Neurosurgery Resident
University of Ottawa,
Ottawa



DR. PHILIP KAWALEC

MD, PGY-1
Neurosurgery Resident
University of Manitoba,
Winnipeg

A Detailed Commentary on the Year Passed

Dear valued readers, friends, and colleagues,

We recently celebrated our third anniversary since the formation of CaMSIGN back in September 2020. As CaMSIGN gradually transitions to a post-pandemic world, we look forward to the future with the same intensity in promoting our missions and objectives. It is a pleasure to see considerable growth and interest in our group, thanks to the support of all medical schools and neurosurgery programs across Canada.

One of the important principles that has occupied our efforts in the Past Year has been to be part of a culture that promotes and celebrates equity, diversity, and inclusion within the field of neurosurgery. We firmly believe that this is essential as we bring together Canadian medical students who are interested in and passionate about neurological surgery.

Since the publication of our previous progress report, we have expanded our executive team with additional recruits from new medical schools. These have been done with the intention of creating educational resources tailored for medical students interested in neurosurgery and clinical neuroscience. Our representation now consists of six of the seventeen medical schools in the country, representing more than a third of all medical institutions in the country. Moreover, we have recruited the first senior undergraduate student to our team as a testimony that those interested in neurosurgery should be given the opportunity to receive exposure early on in their educational careers. This has also coincided with more active participation from the undergraduate students, in addition to our growing pool of medical students.

The CaMSIGN Blog has experienced a steady increase in growth compared to previous years. While maintaining our focus on landmark neurosurgical papers, we have also shared content relating to performing well on neurosurgical rotations during clerkship and fourth-year electives. This material, rigorously reviewed, has been approved by neurosurgical residents.

Our group hosted the second annual post-CaRMS event, where we had the privilege of hosting several recently graduated medical students who had successfully matched into neurosurgical programs across the nation. It speaks to the generosity of these recent graduates, that they were willing to take time out of their schedules following medical school, that included a well-earned relaxation prior to residency matriculation and may have included cross-country moves - to speak to the younger students who are in the shoes that they once occupied.

A Detailed Commentary on the Year Passed

During this session, the incoming PGY-1s offered insights and well-earned wisdom on how to succeed in the neurosurgical rotations and subsequently the CaRMS match. These incoming residents graciously answered all the questions of our students and offered their contact information for those who had further questions after the conclusion of the event. We are pleased that, for the first time, this session was recorded and archived on our YouTube channel, so students could refer back to it.

Additionally, our social media presence has grown as we continue to produce and share content on our four major social media platforms to offer students a chance to practice their neuroanatomy through weekly neuroanatomy cases and expose them to landmark neurosurgical papers through our blog posts. At the time of writing this report, our YouTube channel has exceeded 22,600 views with close to 250 subscribers, many of whom are international viewers.

Our accessible events have allowed us to reach across the Canadian border for the first time in our young history, exposing our students to a wide variety of experts from the United States. We had the pleasure of hosting the Director of Policy and Advocacy at the Program in Global Surgery and Social Change at Harvard University- neurosurgeon Dr. Kee Park, and Professor and J.T. Robertson Chair, Department of Neurosurgery, University of Tennessee Health Science Center, Dr. Frederick Boop. Additionally, in keeping with our goal of exposing medical students to other fields within the umbrella of clinical neurosciences, we were proud to host the head of Diagnostic and Interventional Neuroradiology and co-director of the Charles Drake Neurovascular fellowship at Western University- Dr. Sachin Pandey.

CaMSIGN began two new exciting developments: First, we are proud to announce the establishment of the first neurosurgery mentorship-mentee program in Canada. This longitudinal program pairs 3-4 medical students with one resident and affords students the opportunity to have regular meetings with the residents, every three to four months, learn from their wisdom and be closely mentored by them. With 30+ Canadian, and even international medical students, pre-registering for this program, we believe this is aligned with EDI principles and can further reduce barriers early on. For this, we would like to share our deepest appreciation to many residents across Canada, who have graciously volunteered their time to mentor our young medical students. We are also fully receptive and encourage our national audience, whether residents or faculty, who would like to participate in this program and provide suggestions for its expansion.

A Detailed Commentary on the Year Passed

Secondly, during November, we will be launching our first-ever set of online educational modules. In tandem with our weekly quizzes on social media, this offers medical students a wide variety of virtual resources tailored to provide additional training and education in subjects pertaining to clinical neurosciences.

It is our hope that this will prove to be an invaluable resource for medical students, especially those who may not have a neurosurgery program at their home institution. Our first set of modules, which will be delivered through the online course site: Canvas, will be dedicated to history taking and neurological examinations.

We continue to build on our interest in neurosurgical medical education. Under the direction and supervision of Dr. Ashish Kumar, of the University of Toronto's Dept. of Neurosurgery at Sunnybrook Hospital, our group is investigating the perception of medical students and their early exposure to neurological surgery. At the time of this writing, the project is pending finalization from the University of Toronto's REB. The results of this study would be relevant to how we can incorporate medical student feedback in curriculum design, mentorship opportunities, and the ability to engage those interested in neurosurgery earlier on.

As we progress into year four, and look towards what the future holds for our growing organization, there is no doubt that what we have achieved would be impossible without the continued support of our Advisory Board, medical schools across the country, and Canadian neurosurgical programs. Only by standing on the shoulders of giants, do we dare to venture forth and continue to look into the future with enthusiasm and optimism to build upon our collective achievements. CaMSIGN will forever remain cognizant of its ideal, and the responsibility we have that not only provided us with the purpose to begin this organization, but also acts as the core of our mission going forward.

It is a pleasure to be a voice of the students and to intimately work together with medical students, residents, faculty, and neurosurgery programs to meet the demands of the field. We end this note with a reminder that all feedback and suggestions to improve our group are welcomed and encouraged. Thank you for your trust in this initiative and for being a part of its success.

Sincerely,

The CaMSIGN Executive Team



Summary of Events

Research and Clinical Care: Neuroradiology cases with Dr. Sachin Pandey

July 12th, 2023

Dr. Sachin Pandey is a Harvard-trained diagnostic radiologist. He currently works as the division head of Diagnostic and Interventional Neuroradiology and as an Associate Professor in the Department of Medical Imaging with cross-appointments in Clinical Neurosciences and Otorhinolaryngology at Western University.

CaMSIGN had the pleasure of hosting Dr. Pandey for our first-ever case-based discussion on neuroradiology. The goal of this session was to equip medical students with a basic understanding of neuroimaging to help them understand and interpret different neuroradiological images across various imaging modalities. He emphasized the importance of collaborative work between different specialties, including those under the umbrella of clinical neurosciences. In this incredibly insightful event, Dr. Pandey masterfully combined the teaching of neuroradiology with passionate medical students as well as his well-earned wisdom about working with different specialties, all in the name of ensuring the best possible care for patients. His talk was well-received and quickly became the most-viewed video on our YouTube channel, now with close to 15,000 views. We hope to build on this success and grow our YouTube channel to include a repertoire of useful resources for medical students interested in neurosurgery.



DR. SACHIN PANDEY
MD, Neuroradiologist

Post-CaRMS Match Panel 2023

June 18th, 2023

CaMSIGN had the pleasure of hosting numerous incoming PGY1 neurosurgical residents from across the nation. The new residents graciously agreed to join us to provide our audience with their hard-fought wisdom and tips on how to make the most of four years of medical school to succeed at being accepted into a neurosurgical residency program. This year, diverging from our previous approach, we decided to have an inclusive discourse that engaged all residents and students simultaneously, rather than utilizing breakout rooms with groups of students and residents. This strategy aimed to enrich the educational experience for all students by providing them an opportunity to participate in, and learn from, the gamut of discussions and queries raised by their peers.



Global Neurosurgery: The Pursuit of Neurosurgical Equity and The Importance of Advocacy for our patients

April 16th, 2023

Dr. Kee Park is a consultant for the World Health Organization and serves on the WHO Expert Advisory Panel on Surgical Care and Anesthesia. He is also the Editor in Chief of The Journal of Global Neurosurgery. He is the Director of the Policy and Advocacy Program in Global Surgery and Social Change. Dr. Park is a consultant for the World Health Organization and serves on the WHO Expert Advisory Panel on Surgical Care and Anesthesia. Dr. Frederick Boop is a previous president of the American Association of Neurosurgeons and presently working at the St. Jude Global Program. He remains the Emeritus Chair of the Department of Neurosurgery at the University of Tennessee.

CaMSIGN had the pleasure of hosting two world experts in global neurosurgery. Our audience appreciated the importance that every patient who needs neurosurgical care ought to receive access at the point of need. Our students learned about the key intersection between effective policy in ensuring patients of low and middle income (LMICs) nations are able to receive care, and the role practitioners in both LMIC and high income nations have in reaching this lofty goal.



CaRMS Night: Overview Of Canadian Neurosurgery Programs

November 22nd and 23rd, 2022

CaMSIGN had the pleasure of hosting our second annual cross-Canada CaRMS night event. It was during this event that we had the immense privilege of welcoming program directors from neurosurgical programs from centers across Canada to give talks on their respective residency programs. This two-day event afforded medical students from all years (with a focus on graduating students) the invaluable opportunity to interact and connect with program directors in a low pressure environment, and learn about the merits of each program, from culture to what training looks like at each center.

Of special note, we had the opportunity to host French-speaking neurosurgical centers for the first time in our history during this talk, as Université de Sherbrooke graciously agreed to present their program to our audience members.

Women In Neurosurgery
Dr. Idara Edem: Trajectories To Neurosurgery

September 17th, 2022

Dr. Idara Edem is a Canadian-trained neurosurgeon and an Assistant Professor at Michigan State University. She attended medical school at Queen's University and completed her neurosurgery residency at The Ottawa Hospital, University of Ottawa. During her residency, she also earned an MSc in Global Health and Global Surgery from King's College London, UK. Following residency, she completed a Neurosurgical Oncology/Skull Base fellowship at the University of Texas M.D. Anderson Cancer Center.

She has conducted research related to general neurosurgery and skull base neurosurgery and has avid clinical and research interests in the provision of neurosurgical care in low and middle income countries (LMICs) and the policy changes needed to improve access to surgical care worldwide. Dr. Edem currently serves as Director of Skull base and Neurosurgical Oncology at the Insight Institute of Neurosurgery and Neuroscience, which she joined in October 2020. Her specialties include: general neurosurgery, neurosurgical oncology and skull base neurosurgery.

CaMSIGN was honored to host Dr. Edem for our first Women in Neurosurgery talk of the year. She regaled our audience with her incredible journey from undergraduate to becoming a top neurosurgeon and an advocate in global neurosurgery. She discussed her early life experiences leading her to a career in medicine and neurosurgery. Dr. Edem took our audience along on her journey to the UK and her fieldwork in South Africa for her research. Her talk served as an inspiration to those interested in pursuing global neurosurgery as a career path.



DR. IDARA EDEM
Neurosurgeon, MD, MSc



Blog Posts

This year, we have continued to build on our blog posts initiative. Initially developed as a tool to summarize notable and landmark neurosurgical papers for medical students, we have also branched out to include posts on neurosurgical clerkship performance, as well as books relevant to the field. It is our goal, that it become a center-point of discussion among our medical student audience members and a helpful resource for those wishing to learn more about neurosurgery.

1. Spina Bifida Outcome: A 25-year Prospective – A Summary for Medical Students

Written by Zaanjana Zivaaria

Reviewed by: Dr. Patrick J. McDonald, MD, MHSc, FRCSC, Professor and Head – Section of Neurosurgery, Max Rady College of Medicine, University of Manitoba

Date: October 4th, 2023
Link: https://camsign.ca/blog/spina-bifida/

"Over the past three decades, significant advancements have been achieved in the prognosis of patients with myelomeningocele."

2. Exploring The World Of Neurosurgery: Essential Books For Medical Students

Written by Retage Al Bader

Date: July 28th 2023
Link: https://camsign.ca/blog/book_recommendations/

"We've gathered some insightful books that delve into the fascinating world of neurosurgery."

3. How to do Well in Clerkship With a Focus on Neurosurgery

Written by Abrar Ahmed

Reviewed by: Dr. Brij Karmur, MD. Division of Neurosurgery-Department of Clinical Neurosciences, University of Calgary

Date: May 15th 2023
Link: https://camsign.ca/blog/tips-for-neurosurgery-clerkship/

"I have compiled strategies offered by senior medical students, residents and attendings on how to best impress during neurosurgical rounds."

4. Decompressive Craniectomy In Diffuse Traumatic Brain Injury: A Summary For Medical Students

Written by Abrar Ahmed

Reviewed by: Dr. Mahmood Fazl, MD, FRCSC, Assistant Professor, Department of Surgery, University of Toronto Division of Neurosurgery

Date: January 8th, 2023
Link: https://camsign.ca/blog/decompressive-craniectomy/

"In conclusion, while craniectomy reduced ICP, and time spent on mechanical ventilation and in ICU relative to standard of care, these patients had a lower median score on the Extended Glasgow Scale than standard-of-care patients."

5. The Effect Of Gamma Knife Radiosurgery Of Large Posterior Fossa Metastases And The Associated Mass Effect From Peritumoral Edema: A Summary For Medical Students

Written by Abrar Ahmed

Reviewed by: Dr. Michael West, CM, OM, MD, PhD, BSc(Med), FRCSC, Professor Emeritus, Neurosurgery, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba

Date: October 2nd, 2022
Link: https://camsign.ca/blog/gamma_knife_radiosurgery/

"The retrospective chart review demonstrated that GKRS was able to significantly reduce the volume of the peritumoral edema and large posterior fossa metastases and increase the volume of the fourth ventricle in patients with minimal side effects."



Ongoing Research Projects

Early Exposure To Neurosurgery: Assessment Of Perceptions, Expectations, Mentorship, Representation And Competence On Medical Student Interest in Neurosurgery

The objective of this research project is to gain a comprehensive understanding of the interests, attitudes, and expectations of Canadian medical students towards the field of neurosurgery. The specific aims and objectives of the study are as follows:

1. Generate Early Interest and Exposure in Neurosurgery: The project seeks to promote early interest and exposure to the field of neurosurgery among Canadian medical students. This may involve identifying factors that can inspire and engage students in considering neurosurgery as a potential career path.

2. Quantitatively Assess Attitudes and Expectations: The research aims to quantitatively assess the attitudes and expectations of Canadian medical students regarding neurosurgical training. This includes understanding their perceptions of the field and what they anticipate from a career in neurosurgery.

3. Correlate Curriculum, Research, and Extracurricular Exposure: The study intends to correlate the attitudes and interests of medical students with their prior experiences, such as their medical school curriculum, involvement in neurosurgery-related research, and participation in extracurricular activities related to neurosurgery. This will help identify how different educational and experiential factors influence students' perspectives.

Overall, the primary goal is to gain insights into the current landscape of medical students' interest in neurosurgery, particularly among students in their first, second, or third year at Canadian medical schools. By understanding these factors and perceptions, this project can inform medical schools and neurosurgery programs on strategies to better support and engage students interested in pursuing a career in neurosurgery.

Currently, the project is awaiting approval by the Research Ethics Board (REB) of the University of Toronto. The next step upon acceptance would be to launch the survey nationally and create focused groups to address the research question.



Upcoming Projects

Mentorship/Mentee Program

This year, CaMSIGN is proud to announce this new initiative. This will be the first comprehensive, pan-Canadian mentorship program offered to students interested in neurosurgery and likely, to the best of our knowledge, within any medical specialty across the country. The purpose of this program is to connect students across Canada to neurosurgical residents across the country with the goal of a longitudinal program that coaches and mentors them. This close educational relationship would enable students to develop valuable insights into life as a resident, research opportunities and overall understanding of the field.

Students have pre-registered expressing their interest and preferences in topics they would like to be mentored in. Those who expressed interest in taking part in this program will be matched with neurosurgery residents. Upon being matched with their mentors, students will have the opportunity to connect with them and establish their preferred mode of communication, which may include emails, messaging platforms, video calls, or a combination thereof. Students and their mentors have the freedom to decide on the topic and frequency of their discussions to foster a friendly learning environment that respects the residents' busy schedules while also maximizing the benefit for medical students.

So far, we have had a great start to this program, with 30+ students expressing their interest in taking part. We plan to match every 3-4 students with one resident as we begin this program in November. An introduction session will be organized to provide an overview of our program and its basic rules and announce the mentorship groups. To ensure the success of this program, we have reached out and ensured the partnership of the Canadian Neurosurgery Research Collaborative (CNRC). This is a national organization of neurosurgical residents working together to conduct research on various topics within neurosurgery, to help further the field.

We would like to take a moment now to extend our deepest gratitude firstly to all the residents who have generously given their time and shared their expertise with the students, and to the medical students who have shown interest in our program. As we navigate through the inaugural year of our mentorship program, our goal is to leverage valuable feedback from mentors and mentees alike to enhance our existing platform. We aim to continually improve our program annually, with our sights set firmly on providing an ultimately enriching experience for all medical students interested in neurosurgery.

Educational Modules

This year, CaMSIGN is very excited to announce the creation and distribution of educational modules for our fellow students. The goal of this program is to create a centralized and accessible platform for students interested in gaining a deep understanding of various neurological topics. These modules aim to bridge the knowledge gap and make complex neurological topics more approachable to a wider student audience within Canada. By providing a centralized location with structured and comprehensive information, our educational modules strive to empower learners to explore neurological topics at their own pace and convenience. This vision aligns with the growing importance of identifying neurological conditions, and fostering a deeper appreciation and understanding of the intricate workings of the nervous system.

We are committed to supporting students by providing the necessary foundational knowledge and skills necessary. Currently, our modules cover a wide range of fundamental topics such as history taking, physical exams, and neuroanatomy. We aim to delve deeper and broaden our curriculum to include various other topics such as neuroimaging, various neurosurgical subspecialties and surgical anatomy. We have also been active in sharing general resources, textbooks, online YouTube video channels, Apps, and clinical research papers. We hope to continue on this trajectory and provide educational content on the most commonly presenting conditions seen in neurosurgery, and eventually venture into case-based learning. Pairing this approach with our case-based challenges posted on our social media platforms, we aim to provide students with a repertoire of neurosurgery-related resources ranging from educational content to thrilling cases to provide medical students with the requisite knowledge to thrive in their neurosurgical rotations, as well as to succeed in their prospective neurosurgery careers.

To our knowledge, this is a novel effort in neurosurgery initiatives for medical students, and we look forward to continuing to support students' educational goals through this growing project.



Goals and Future Directions

Neurosurgery Research Program

CaMSIGN has partnered with the Canadian Neurosurgery Research Collaborative to help keen medical students be involved with neurosurgical research projects. Students will be paired with each project leader and will be an active part of the research process. CaMSIGN also plans to reach out to other groups, such as the Canadian Federation of Medical Students, and Ontario Medical Students Association, to build new alliances and partnerships.

International Collaborations

While CaMSIGN is the first neurosurgery interest group in Canada, it is not the only interest group of the specialty in the world. We have recruited Dr. Mohammad Mofatteh as our international colleague and educational advisor to CaMSIGN. CaMSIGN plans to form partnerships with The Neurology and Neurosurgery Interest Group (NANSIG), and Brain Book in the United Kingdom and the Brain and Spine Group, Women in Neurosurgery (WINS), American Association of Neurological Surgeons (AANS), and the Congress of Neurological Surgeons (CNS) in the United States.

An Interdisciplinary Approach

CaMSIGN will continue to organize collaborative workshops involving experts within neurosurgery, neurology, neuroradiology, neuropathology, and neuropsychiatry with the goal of familiarizing learners with the intersection of these disciplines as it relates to better patient care and management. In doing so, we hope to broaden our audiences' understanding of what it means to be a physician within the clinical neurosciences.