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Letter to the Editor: New Observation

The Inception of the Canadian Medical Student Interest Group in Neurosurgery (CaMSIGN): A Student-Led Platform Dedicated to Neurosurgical Education, Research, Mentorship, and Advocacy

Saman Arfaie[1], Pedram Laghaei Farimani[2], Mohammad Sadegh Mashayekhi[2], Benyamin Hakak-Zargar[3], Mostafa Fatehi Hassanabad[4], Jenna Smith-Forrester[5], Nicholas Sader[4], Mojgan Hodaie[6], Rolando Del Maestro[7] and Sunit Das[6]

[1]Faculty of Medicine, McGill University, Montréal, Quebec, Canada, [2]Faculty of Medicine, University of British Columbia, British Columbia, Canada, [3]School of Medicine, Deakin University, Victoria, Australia, [4]Division of Neurosurgery, University of Calgary, Alberta, Canada, [5]Division of Neurosurgery, Dalhousie University, Nova Scotia, Canada, [6]Division of Neurosurgery, University of Toronto, Ontario, Canada and [7]Neurosurgical Simulation and Artificial Intelligence Learning Centre, Department of Neurology and Neurosurgery, McGill University, Quebec, Canada

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Neurosurgery enjoys a distinct position among the medical specialties as a constantly evolving field with rapid innovations in surgical operations and management.[1] Research led by Del Maestro and colleagues suggests that the development of surgical expertise requires objective technical assessment of psychomotor abilities, transparent feedback, and deliberate practice.[2,3] As a technology-intensive surgical discipline, it is essential that medical students with an interest in pursuing neurosurgery receive early, regular exposure to clinical vignettes and neuroanatomy. Given the broad demands of undergraduate medical education, the opportunities to use this forum to disseminate neurosurgical knowledge is limited.

Based on the most recent statistics from the Canadian Residency Matching Services (CaRMS), 21% of Canadian medical students have a strong commitment to surgical disciplines; of these students, 84% match to surgical specialties.[4] Research is one of the areas to show commitment to neurosurgery and interest in contributing to the field. For example, a recent survey conducted by the Canadian Neurosurgical Research Collaborative (CNRC) has indicated at least 75% of residents are interested in incorporating research into their future practice with 78% indicating interest in working at an academic institution.[5,6] Since building one's research portfolio is a rigorous and lengthy process, it is valuable to have a student-led organization dedicated to academic discussions and research initiatives with a neurosurgical focus. The birth of the Canadian Medical Student Interest Group in Neurosurgery (CaMSIGN), as a cross-provincial platform, is dedicated to neurosurgical education, research, and advocacy. As such, CaMSIGN fills the gap in Canadian medical education by advocating for medical students (including those belonging to a minority), providing effective mentorship opportunities, and adding cohesion via a centralized system that pairs interested medical students with one another and with residents and faculty.

Since its establishment in September 2020, CaMSIGN (https://camsign.ca/) has become the first nationally recognized neurosurgery initiative to utilize a student-led organization model with the goal to create an atmosphere of academic mentorship and national engagement. With greater than 20 events and active participation of more than 500 members to date, CaMSIGN's primary aim is to act as a medium that connects medical students, residents, and staff neurosurgeons. Additionally, CaMSIGN's secondary goal is to show the interplay between neurosurgery with neurology, neuroradiology, and neuropathology. This approach emphasizes a *gestalt* understanding of the human body and benefits student learning in clinical scenarios.

The main objectives of CaMSIGN would be summarized as follows:

- Provide an equal opportunity to all Canadian medical students to explore neurosurgery via a nationally accessible resource.
- Create and curate a digital archive of resources comprised of lectures, journal club discussions, neurosurgical case studies, workshops, and personalized interviews with neurosurgical faculties and residents across Canada.
- Act as a bridge between all neurosurgery residency programs across the country and interested medical students.
- Form a central portal dedicated to advice about CaRMS applications, interviews, and a comprehensive database of resources pertaining to neurosurgery programs, events, and electives.
- Advocate for increased representation of women and underrepresented groups in neurological surgery.
- Foster a collegial community and culture of collaboration among medical students interested in all aspects related to clinical and academic neurosurgery.

Corresponding author: Saman Arfaie, Faculty of Medicine, McGill University, 3605 Rue de la Montagne, Montréal, QC H3G 2M1, Canada. Email: saman.arfaie@mail.mcgill.ca
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- Establish a mentor–mentee program between neurosurgery residents and medical students as a nexus of communication, learning, and empowerment.

Through the 'Women in Neurosurgery' initiative, CaMSIGN has solidified its commitment to the promotion and showcasing the talents of women who pursue surgical specialties. Without question, encouraging a more equitable ratio of women to men in neurosurgery will benefit the healthcare system in its entirety. Through introducing role models in the field to medical students, we are confident that CaMSIGN will contribute to the increased presence of women in surgical fields and positions of leadership in the years to come.

The current COVID-19 pandemic has posed unprecedented challenges for Canadian medical students and has led to the cancelation of away electives for incoming CaRMS applicants.[7] CaMSIGN has circumvented some of these challenges by organizing the first Canada-wide neurosurgical program overview featuring residency program directors. Through an educational videoconferencing initiative, that is now available on CaMSIGN's website, 10 neurosurgery program directors from across the country, represented their residency program and provided an overview.[8] This session has enabled medical students to familiarize themselves with different residency programs and their culture and develop a sense of what training at each respective institution would be like. Since this posting, CaMSIGN has become the main platform that helps Canadian neurosurgery residency programs to disseminate news from their department and events with interested medical students across the nation.

Feedback and testimonials from CaMSIGN members indicate that upon attending events, medical students have felt a greater sense of connection and enhanced emotional well-being. As such, CaMSIGN also helps with reducing social isolation, fostering positive interactions, and belonging to a community. Our goal is to paint a more accessible image of neurosurgery, demystifying the notion that only a select few can pursue the field. Ultimately, it will be important that the Canadian healthcare system benefits from all talents and skill sets of students coming from diverse backgrounds.

CaMSIGN benefits from the guidance and mentorship of a dedicated Advisory Board Committee consisting of neurosurgical faculty, residents, and fellows who provide expert advice that is targeted toward improving its strategic mission and refining its respective long-term goals. By incorporating their expert feedback, CaMSIGN continues to make improvements to best serve the needs of Canadian medical students and beyond.

Overall, CaMSIGN is committed to showcasing diverse talents from various neurosurgical subspecialties, curating high-quality educational content, advocating for students, providing mentorship opportunities, and increasing student's research presence. This is the start of a new and exciting chapter for Canadian neurosurgery.

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