

REVIEW ARTICLE

Journal Section

Medical Students in Global Neurosurgery: Rationale and Role

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Global neurosurgery aims to build equity in neurosurgical care worldwide. The active involvement of early-career general practitioners, neurosurgical residents, and medical students in global neurosurgery is critical for the development of sustainable strategies to address inequalities. However, the rationale for medical student involvement in global neurosurgery and strategies to increase medical student involvement have not been described previously. We characterize why medical students are fundamental to the success of global neurosurgery initiatives, outline existing opportunities for medical students in the global neurosurgery space, and delineate how to incorporate medical students into various global neurosurgery initiatives.

KEYWORDS

Global health, global neurosurgery, global surgery, health disparities, health equity, medical education, medical students

1. | INTRODUCTION

Approximately 5 million essential neurosurgical cases are unmet each year, all in low- and middle-income countries (1). After the Lancet Commission on Global Surgery described the absence of global surgery from global health discourse in January 2014 (2), the field of

neurosurgery quickly recognized the importance of increasing equity in care globally (3-5). Although existing initiatives in global neurosurgery have focused on neurosurgeons and trainees, medical students represent a promising group for sustainable long-term engagement. We characterize why medical students are fundamental to success, outline the importance of incorporating medical students, and delineate how to increase medical student interest and participation in global neurosurgery.

1.1. | MEDICAL STUDENTS ARE A VITAL RESOURCE FOR GLOBAL NEUROSURGERY

Medical students add tremendous value to the global neurosurgery movement (6). First, medical students exhibit unparalleled enthusiasm, motivation, diligence, and determination to change positively. Mobilizing this enthusiasm will ensure that initiatives are carried out comprehensively and empathetically (7). Second, medical students have strong time management skills. Practically, this allows students to assist neurosurgeons and trainees, who may be busier, with data collection and analysis, writing, meeting participation, and project administration (8,9). Third, medical students add an innovative and fresh perspective to global neurosurgery, arising from differences in career stage, extensive diversity of backgrounds, resourcefulness, familiarity with technological developments, and a propensity to question long-standing assumptions.

These factors allow for the refinement of existing perspectives, development of new ideas, application of novel modes of thinking to complex problems, and streamlining of workflows (10-12). For example, medical students have used social media to organize and publicize collaborative efforts and share information (12, 13). The perspectives of medical students are complementary to those of trainees and neurosurgeons (14). The capacity of – and the necessity for – medical students to engage in continual learning compounds these benefits.

1.2. | IMPORTANCE OF NURTURING THE FUTURE OF GLOBAL NEUROSURGERY

The importance of education in sustainably addressing the global burden of neurosurgical disease extends to medical students (15). Engaging medical students in global neurosurgery will capture interest and provide an avenue for long-term participation in global neurosurgery initiatives (16). Early experience in global health sets the foundation for an interest in the field, provides a global perspective, and increases interest in assisting underserved communities (17, 18). Additionally, early exposure to global neurosurgery will create a generation of neurosurgeons who are attuned to inequities in neurosurgical care locally and globally. Involvement in global health increases awareness of existing disparities (17-19); similarly, early exposure to research will allow medical students to understand the methodology, data collection and analysis, and project administration to catalyze leadership of studies to characterize disparities (20-23).

Additionally, early involvement will facilitate the growth of medical students into surgeons with knowledge regarding the interplay of public health, advocacy, and capacity concerning global neurosurgery. Given these factors substantially influence the delivery of neurosurgical care worldwide, understanding their role within the local context is essential for successfully implementing initiatives (5, 14, 24). Engagement of medical students will also equip the next generation of neurosurgeons to collaborate with a wide array of partners by enhancing communication skills, teamwork, and cultural humility and respect (25). These capabilities will ensure equitable partnerships (26).

1.3. | INCREASING EXPOSURE TO GLOBAL NEUROSURGERY AMONG MEDICAL STUDENTS

First and foremost, medical students interested in neurosurgery must understand what global neurosurgery is. The field of global neurosurgery and its multifaceted nature must be publicized. However, at present, there are few opportunities to participate (27-29). Meticulously designed international electives for medical students interested in global surgery, focusing on global neurosurgery, may increase long-term interest (30). Existing interest groups may be utilized as a vehicle to provide education, connect medical students with trainees and neurosurgeons involved in global neurosurgery, and enhance participation in global neurosurgery. These include the American Association of Neurological Surgery medical student chapters, Asian Medical Students and Residents Society for Neurosurgery, Walter E. Dandy Neurosurgical Society Global Chapters, World Federation of Neurosurgical Societies Global Neurosurgery Committee, and InciSion, among others.

Medical student participation at conferences and symposiums may also provide these benefits (31). Additionally, long-term mentorship of medical students may expand interest and create opportunities to participate in global neurosurgery (32, 33). Finally, an emerging strategy is utilizing online modalities. Virtual grand rounds, conferences, and interactions have become accepted as an integral tool in neurosurgery (34-36). These opportunities can be mobilized to convey content to medical students and catalyze collaborations across geographic areas. The present manuscript serves as an example of the latter.

2. | CONCLUSION

Medical students hold largely untapped potential for decreasing inequities in neurosurgical care. Motivating and mobilizing medical students worldwide in global neurosurgery initiatives represents a long-term investment for driving sustainability.

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