



Addressing Africa's outrageous neurosurgeons deficit: what could the problem be?

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Dear Editor,

Approximately 66% of the global population requires essential surgical care, with an unmet need putting a strain on healthcare systems worldwide^[1]. Neurosurgery crucially saves lives by intervening with complex and often treatment-refractory cases of the central nervous system that can have far-reaching consequences. The world is undeniably suffering from a severe shortage of neurosurgeons, with recent statistics indicating that there are only ~49 940 neurosurgeons worldwide^[1]. The number of neurosurgeons is further disproportionately distributed across the globe, with African countries bearing the brunt of the burden.

Neurosurgical diseases in Africa are said to account for 15% of all neurosurgical diseases worldwide^[2], but as of 2020, there were only 1165 neurosurgeons on the African continent to meet this demand. Even within Africa, there is an inequitable distribution of neurosurgeons, with 756 out of 1165 neurosurgeons located in North Africa, and the remaining 409 neurosurgeons located in Central, East, and West Africa combined. The 409 neurosurgeons in those three African regions equate to one neurosurgeon for every 2.2 million people^[3].

Many African nations have attempted to address neurosurgical care deficits in several ways. Countries such as Malawi, Mozambique, and Uganda have launched non-physician neurosurgical training programs with the goal of training nonphysicians to perform life-saving surgeries including neurosurgery^[4]. This initiative appears to have ameliorated the surgical workforce shortage and augmented neurosurgical care^[4]. Nonetheless, nonphysician surgeons are significantly limited in their training, and they are unable to meet the needs of neurosurgical patients with conditions beyond their scope

of practice^[4]. Furthermore, complex cases and unexpected complications necessitate highly trained neurosurgeons^[4]. A scarcity of experienced neurosurgeons endangers patients and may discourage communities from seeking neurosurgical care^[4].

The interest in neurosurgery as a career path has grown in recent years; Dada et al.^[5] reported that ~7% of African final year medical students expressed an interest in the specialty. However, their career success is hampered by several factors, including insufficient exposure to neurosurgical procedures, a lack of training opportunities, stringent application requirements to name a few. As a result, the majority of medical students are unmotivated to pursue a career in neurosurgery^[5]. In general, neurosurgical residency demonstrates residents taking complete responsibility for patient care. Aspirants are unaware of the prerequisites, costs, and availability of training opportunities^[6]. Mentors may also be unwilling to assist and could be unavailable. There is scant information provided on the training program's length of training, curriculum, and available resources^[6]. For the aforementioned reasons, most African residents do not consider neurosurgical training in Africa, and those who do begin eventually give up.

In a rapidly modernizing world, African countries are unable to compete with developed countries in terms of retaining health professionals, paralleling the migration of the most capable and intelligent citizens to high-income and developed countries. Inadvertently, Africa strengthens other countries' healthcare systems through the loss of its exceptionally skilled healthcare professionals to these other nations. Several factors contribute to the widespread emigration of African healthcare workers to various developed countries. While economic pressures greatly influence most African healthcare worker's decisions to migrate, there are several other factors. Subpar healthcare systems, insufficient training opportunities, day-to-day security issues, and other factors are among them^[7]. In fact, the facilities in Africa are mostly substandard, with a heavy workload and a high patient load^[7]. As a result, most African health workers believe they are underpaid in comparison to what they would earn in these developed countries for even less work.

The appalling neurosurgeon-to-patient ratio in Africa may result in the tragic loss of countless innocent lives. As a result, we seek global attention to address Africa's shocking neurosurgeon shortage. Global partnerships, collaborations, and training programs should be well established to provide well-structured and standardized neurosurgical training in Africa. This could ensure that quality training is delivered equally across the continent and limit the number of upcoming neurosurgeons who are trained in developed countries. This is due to the fact that the majority of those who travel for such international training are reluctant to return home due to the high quality of exposure they receive. African governments should also prioritize their healthcare systems and allocate funds for the establishment of modernized

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healthcare facilities, particularly neurosurgery facilities in tertiary hospitals to facilitate local neurosurgical training, as well as equip the hospitals with modern neurosurgical devices to provide safe and effective neurosurgical care. African health institutions may also invite international experts to train and mentor neurosurgical trainees in Africa. Furthermore, neurosurgeons should be adequately compensated to avoid skilled personnel emigration due to financial issues. Most importantly, African neurosurgical associations should be able to assist aspiring neurosurgeons in pursuing a lifelong career in neurosurgery through mentorships, advocacy, and neurosurgery-focused career programs.

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