

## Neurosurgical Training Programs in Sub-Saharan African Countries: A Call for Regional Standardization and Accreditation

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Two papers on neurosurgical training in sub-Saharan African countries were presented at the 4th Annual Continental Association of African Neurological Societies (CAANS) Congress in Nairobi in November 2022.

In the presentation "The Scope of Neurosurgical Training and Practice in Africa," the author reviews the development of neurosurgical practice in sub-Saharan African countries from the 20th to the 21st century (1). The main reasons why the number of neurosurgeons in the area isn't growing quickly and why there aren't many formal training programs in the area were discussed. It should be noted that in 1997, Sub-Saharan Africa had only three formal neurosurgery training programs based in Nigeria, Zimbabwe, and Sudan (excluding the Republic of South Africa and North Africa). But by the year 2000, there were 40 formal training programs in the region. These programs were spread across most of the countries in East, West, and Central Africa. The College of Surgeons East and Central Africa, and the West African College of Surgeons are two regional organisations that administer some of the programs, while other programs are institutional and university-based. Depending on the program, the length of the training can range from 4 to 6 years. The entry point for specialist neurosurgical training in the Fellowship programs is 2–3 years after passing the primary stage membership examination. In

institutional-based training, the primary stage of training—principles of surgery—and the secondary stage of training—specialty training—are combined into one continuous training program, but passing the principles of surgery examination is required before beginning the specialty training component.

In the second paper, titled "Accreditation Council for Graduate Medical Education. Oversight of American Specialty Training," the author describes the procedures involved in the accreditation of residency training programs in the United States (2). In the United States, the Accreditation Council for Graduate Medical Education (ACGME) is an independent body in charge of reviewing all training programs and sponsoring institutions. The primary goal is patient safety. All programs should strive for maximum patient safety. This is accomplished through a system-based practice that includes a personal case log of operative cases completed, with a minimum number of cases needed to qualify for certification. Each program is evaluated based on its structure (sponsoring institution and facility, availability of clinical material and equipment), faculty (number of staff and qualifications), and number of residents. The program is also judged by how well its graduates do on the final qualifying test for the American Board of Neurological Surgeons. To be accredited for graduate training, a program must meet all of these requirements. Every ten years, each program is reviewed for re-accreditation.

The British Society of Neurological Surgeons published "Standards for Patients Requiring Neurosurgical Care" in 2002. (3). The manual directs the National Health Service (NHS) centres that provide neurosurgical services on the accepted standards of care and service delivery. It also provides guidance to the National Health Trust Commissioners on the supervision of neurosurgical centres in the United Kingdom, with an emphasis on standard maintenance and patient safety. The key issues addressed include the definition of accepted standards in clinical care and health delivery, methods of standard assessment, and the maintenance of standards during inpatient and outpatient follow-up.

Through the Intercollegiate Surgical Curriculum Program, the General Medical Council regulates postgraduate training and curriculum in the United Kingdom. The neurosurgery training program is divided into three phases (4). The first phase lasts two years and focuses on the neuroscience specialties of neurosurgery, neuroradiology, neuropathology, neurology, and neurointensive care, as well as common core surgical training in emergency medicine and another surgical specialty. After completing this phase, the trainee is eligible to take the membership examination (MRCS). Phase 2 lasts five years, during which time the trainee will perform duties in all areas of clinical neurosurgery, both elective and emergency. Following completion, the trainee will be eligible to take the intercollegiate specialty board examination in neurosurgery. The final phase lasts one year and is based on technical skill acquisition, completion of the Annual Review of Competence Progression (ARCP) outcome 6, and certification. In the case selection for training, emphasis is placed on the observation that 70% of the elective neurosurgical work load in the United Kingdom is spinal.

It is critical to recognize the distinct roles that regulatory bodies play in neurosurgical training programs in the United Kingdom. The General Medical Council approves curricula, the National Health Trust maintains adequate, well-equipped, and staffed hospitals, and the Royal Colleges supervise competency-based training.

The University of Nairobi's Master of Medicine in Neurosurgery degree was established in 2006 at the university teaching hospital, Kenyatta National Hospital. This is a six-year formal training program that is structured similarly to neurosurgery residency programs in North America and the United Kingdom. The first two years are spent learning the principles of surgery (neurosurgery, neuroanatomy, neurophysiology, general trauma and critical care, research methodology, epidemiology, and biostatistics). Part I must be completed successfully before proceeding to Part II. The third year of training, or part II, consists of rotations in neurology, neuroradiology, general and neuropathology, neuro-otology, and neuro-ophthalmology. Weekly neuroradiology and neuropathology conferences are held for pre- and post-operative reviews of clinical cases. This section must be completed successfully before moving on to Part III of training. The final stage of training consists of clinical rotations in all areas of neurosurgery, the completion of a clinical log book of operated cases, research on a chosen neurosurgical topic and the writing of an examinable thesis, and the successful completion of an exit examination. The training program has proven to be very popular, attracting students from many sub-Saharan African countries (5).

The five-year general surgery training program in Kenya includes a three-month mandatory rotation in a neurosurgical unit, where trainees learn how to handle neurotrauma cases and basic neurosurgical

skills (6). Consequently, the Kenyan general surgeon is able to provide primary neurotrauma care. These rotations also cover other surgical subspecialties, such as cardiothoracic surgery and plastic surgery. The widespread demand that non-physicians be trained to treat basic neurosurgical conditions has no place in Kenya and should be disregarded. The general surgeon educated in Kenya is well-versed in neurosurgical and other surgical trauma emergencies. This ensures patient safety and safe surgery in sub-Saharan African countries. These neurosurgery and general surgery training programs should be bolstered and developed in tandem with global technical and economic developments.

Kenya's health sector was devolved in 2010 following the promulgation of the new constitution (7). The goal was to allow county governments to participate in the design and implementation of health programs that were tailored to their specific needs. However, this has resulted in stagnation in health care and, in some cases, the reversal of earlier gains. The 47 counties have an unequal distribution of health-care facilities. Half of these counties have fewer than two health facilities per 10,000 people, and in some counties, these facilities are dispersed, requiring patients to travel long distances to access them. Establishing regional National Specialist Referral Hospitals under the National Government, akin to the former Provincial Referral Hospitals, will be necessary to address the provision of devolved neurosurgical services.

What does the future hold for the training programs in neurosurgery in the sub-Saharan African nations? We must train neurosurgeons who can compete with their colleagues in the developed world. This will

only be possible if we work to ensure that our training programs are comparable to those in the developed world. We must address the issue of standards and accreditation in order to accomplish this. This should begin at the national level and eventually progress to the regional level via neurosurgical societies such as the East African Association of Neurological Surgeons and the continental level via CAANS and the World Federation of Neurosurgical Societies (WFNS).

#### References

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