MEDICAL EDUCATION IN SUB-SAHARAN AFRICA: EVOLUTION, CHALLENGES, AND THE WAY FORWARD- INSIGHTS FROM PROF. MAGNUS CHIKE NZERUE

An Interview with
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Medical education in Sub-Saharan Africa has undergone significant changes over the years, shaped by both local and international influences. Despite the remarkable progress in training physicians, numerous challenges persist, limiting the full potential of medical education in the region. In this interview, **Prof. Magnus Chike Nzerue**, a distinguished nephrologist and professor of medicine, shares his insights on the evolving landscape of medical training in Africa, highlighting the impact of international collaborations, the role of innovation, and the systemic challenges that must be addressed.

A Historical Perspective on Medical Education in Sub-Saharan Africa

While most scholars categorize the history of medical education in Sub-Saharan Africa into three phases, Prof. Nzerue believes there is a fourth, often overlooked, phase. Citing the work of Prof. Gottlied Monekosso, a pioneer medical educator from the University of Yaoundé, he explained the widely accepted three-phase model[1].

Before 1950, medical education in West Africa was largely concentrated in two institutions: University College Ibadan (now the University of Ibadan), which was established in 1948 as a branch of a UK medical school, and Fourah Bay College in Sierra Leone which holds historical significance as it trained the first West African to become a licensed physician, Dr. James Africanus Horton. The second phase, from the 1950s to 1960s, coincided with the wave of independence across African nations. This period saw the establishment of new medical schools such as Obafemi Awolowo University, the University of Ghana, the University of Lagos, and the University of Dakar.

The third recognized phase, beginning in the 1990s, was marked by mass emigration of medical professionals to Europe, the United States, and the Middle East. However, Prof. Nzerue highlighted an overlooked phase which is the period that produced figures like Horton, who returned to Africa and contributed to the founding of early medical institutions like Fourah Bay College. This foundational period he believes laid the groundwork for later advancements in African medical education.

Major Shifts in Recent Years

Reflecting on changes in the past few decades, he pointed to several transformative trends. One of the most notable has been the shift towards localized postgraduate medical training. Institutions such as the West African College of Physicians and Surgeons and the National Postgraduate Medical College of Nigeria have strengthened their presence, establishing relationships with international counterparts like the Royal Colleges in the UK and the American College of Physicians. French-speaking African nations have similarly built affiliations with the French postgraduate system, fostering cross-border expertise exchange. Another major shift has been the increasing use of virtual learning technologies. Platforms like Zoom, Google Classroom, and Microsoft Teams have allowed students to engage with instructors beyond their immediate environment. This has also facilitated greater international collaborations between African medical schools and institutions abroad.

Such as the collaboration between the University of Nigeria Teaching Hospital (UNTH) and the University of Michigan for kidney disease research and that between the University of Ibadan and the University of Chicago for cancer treatment, allowing for expert consultations and even assistance with procuring medications that may be otherwise inaccessible in Nigeria.

The Role of International Collaborations: A Double-Edged Sword

When discussing the impact of international partnerships on medical education in Africa, he described it as a scenario with "the good, the not so good, and the ugly."

The ideal purpose of these collaborations is to foster a symbiotic relationship, where both sides benefit. African trainees gain exposure to advanced diagnostic and treatment methods, with the expectation that they will return home to apply these skills in their local healthcare systems. However, economic and political challenges have often disrupted this cycle.

One example he cited was the University of Alberta's training program for nephrologists in Sub-Saharan Africa. While many specialists were trained in kidney pathology and transplantation, upon their return, they found that the necessary infrastructure such as HLA laboratories was lacking. Governments and sponsoring institutions often failed to provide the funding required to implement these newly acquired skills. In frustration, some of these specialists returned to Canada, the UK, or the US, leading to a brain drain instead of a knowledge transfer.

This issue extends beyond nephrology. He noted that specialists trained in open-heart surgery sometimes return to find that their hospitals lack essential personnel such as perfusionists or technicians skilled in operating heart-lung machines. As a result, procedures that should become routine remain rare, limiting opportunities for registrars and medical students to gain firsthand experience.

However, despite these setbacks, some collaborations have been successful. Private institutions like Saint Nicholas Hospital in Lagos have sustained a kidney transplant program for over 15 years, thanks to a partnership with St. George's Hospital in London. Unlike government-run teaching hospitals, Saint Nicholas has access to the necessary resources, making it a model for how collaborations can be effectively structured.

Another promising initiative is the agreement between Bayero University in Kano and King Fahd Teaching Hospital in Saudi Arabia, which has facilitated consistent knowledge transfer and specialist training. Similarly, the International Society of Nephrology (ISN) has collaborated with the Nigerian Kidney Society, providing training opportunities that have strengthened nephrology care at institutions like UNTH.

While these "islands of success" demonstrate that partnerships can work, he emphasized the need for stronger government investment in medical education. If institutions lack the basic infrastructure to support returning specialists, international training will continue to benefit foreign hospitals more than African ones.

A Look Back: How Medical Training Has Changed

Reflecting on the early years of medical education in Africa, he recalled a time when the system was structured, rigorous, and well-respected. "Medical schools were fewer, but they were well-equipped," he noted. "Admission was strictly merit-based, and students received hands-on training from the best minds." He emphasized that although resources were limited, the focus was on producing high-quality doctors. "Professors were deeply invested in training. Students had more direct mentorship, and clinical exposure was extensive."

Over the years, however, things began to shift. He pointed out that rapid population growth and an increasing demand for medical professionals led to a surge in medical school admissions. "Many institutions expanded beyond their capacity," he said. "Instead of maintaining quality, they focused on increasing numbers, and that's where the decline began."
Beyond this, he noted a worrying trend: declining financial investment in medical education.

He referenced Nigeria's most recent budget under President Tinubu, where the entire education sector received less than 3% of the national budget. Medical education, as a subset of this allocation, receives an even smaller fraction, which has implications for infrastructure, faculty retention, and research development.

Other Obstacles Facing Nigerian Medical Education

Apart from under investment and the overcrowding in medical schools, Prof. Nzerue pointed out several other critical challenges. One major issue is the patient experience. In Nigeria, patients often face significant difficulties in accessing care, leading to dissatisfaction. Unlike in the U.S., where patients are treated as customers and their concerns are actively managed, Nigerian patients frequently endure negative experiences due to systemic inefficiencies.

This dissatisfaction affects medical education because patients, who are central to clinical training, may be less willing to participate in the learning process.

Another challenge is the lack of innovation in medical education. Globally, medical training has shifted toward student-centered learning approaches, but Nigeria still relies heavily on traditional lecture-based teaching. Problem-based learning (PBL), for instance, encourages students to approach medical cases critically. "Instead of simply attending a lecture on pneumonia, students could receive an email prompting them to generate questions based on a hypothetical patient presenting with fever and shortness of breath" he said. This method encourages them to apply their knowledge of anatomy, physiology, and pathology before the instructor guides them through the differentials. However, implementing PBL requires resources, trained faculty, and infrastructure which are currently lacking.

Simulation-based education is another area that remains underdeveloped. In many advanced medical schools, surgical training begins in simulation labs where students practice procedures like hernia repairs, learning about anatomical structures and receiving real-time feedback. This approach reduces errors when students transition to live surgeries. In Nigeria, the lack of investment in such facilities limits hands-on training opportunities.

Virtual education is another underutilized tool. While platforms like Google Meet and Zoom were adopted during the pandemic, they haven't been fully integrated into Nigerian medical education. In contrast, global institutions have expanded their use of virtual learning, enabling students in remote locations to participate in real-time medical education.

Even informal learning methods, such as using social media platforms like Twitter or Threads to share medical questions, are becoming common in other countries. However for these approaches to work, there must be strong internet connectivity. Something that remains inconsistent in many Sub-Saharan medical schools.

Artificial intelligence (AI) is another frontier in medical education. AI-powered tools are being used to teach medical students how to distinguish between different types of breast masses, among other applications. Integrating AI into the curriculum requires deliberate investment in both infrastructure and faculty training.

In summary, beyond financial constraints, the key challenges include patient dissatisfaction, lack of modern teaching methodologies, inadequate simulation facilities, underutilization of virtual education, poor internet infrastructure, and slow adoption of AI-driven learning tools. Addressing these issues will require not just funding but also a willingness to embrace innovative teaching strategies that align with global best practices.

The *Japa Syndrome*: Why Doctors Are Leaving

However, when asked about the most pressing challenge facing medical education today, he did not hesitate. "The problem is simple but devastating—we train doctors, but we don't retain them." The reasons for this are far more complex than just financial incentives. While salaries in many African countries are undeniably low, he argues that the decision to leave is driven by deeper structural issues. "It's about infrastructure, career growth, and the basic dignity of work," he explained. "Imagine spending six years training in a system where hospitals lack essential equipment, research funding is non-existent, and postgraduate opportunities are limited. If another country offers you better conditions, why wouldn't you leave?"

Some governments have responded by increasing medical school enrollment, hoping to produce more doctors to fill the gaps. However, he believes this approach is short-sighted. "More students in overcrowded lecture halls with fewer resources won't solve anything," he argued. A decade ago, class sizes were manageable, and students had better access to clinical training. Today, universities admit two or three times more students without expanding facilities or hiring more lecturers resulting in overworked faculty, overstretched hospitals, and graduates who sometimes lack the hands-on experience they need.

He stressed that unless governments take proactive steps to improve working conditions, the exodus of healthcare professionals will continue. "Doctors are not asking for luxury," he noted. "They just want a decent wage, a functional healthcare system, and the opportunity to grow."

Curriculum Gaps and the Slow Adoption of Technology

On whether medical school curricula in Africa are keeping up with global standards, he was blunt.

"Many universities are still teaching medicine the way it was taught thirty years ago," he observed.
"Elsewhere, students are using virtual reality for surgical simulations, AI-driven diagnostic tools, and problem-based learning. Here, many students don't even have access to cadavers for anatomy classes."
He stressed the need for innovation. "Medical education must evolve with technology. If we don't modernize, our graduates will struggle to compete internationally," he warned.

The Research Deficit: Why African Institutions Lag Behind

Medical research is a cornerstone of academic excellence, yet African universities contribute only a fraction of global publications. When asked about this, he attributed the problem to poor funding and institutional neglect. "Research isn't prioritized," he stated. "Faculty members are overloaded with teaching responsibilities and have little time for meaningful research. There's also a lack of funding for projects, making it difficult to conduct high-quality studies." He pointed out that in well-funded institutions abroad, professors have protected research time and access to grants, allowing them to push the boundaries of medicine. "If we want to produce world-class researchers, we must invest in them."

The Shortage of Medical Lecturers

Another pressing issue is the declining number of qualified lecturers. Many experienced faculty members leave for better opportunities abroad or shift to private practice. "The salaries for medical lecturers are discouraging," he explained. "Imagine spending years in training only to earn far less than what you would in clinical practice. Many choose to leave academia because they can't sustain their families on what they earn." He argued that without well-paid, well-motivated teachers, medical education will continue to suffer. "If we don't fix this, we'll soon have students with no one to train them."

Clinical Training: The Challenge of Hands-on Experience

Medical education is incomplete without proper clinical exposure, yet many students today graduate with minimal hands-on experience. He attributed this to overcrowded hospitals, a lack of teaching infrastructure, and an overburdened healthcare workforce. "We have too many students chasing too few patients," he said. "Consultants barely have time to teach because they're too busy managing overwhelming patient loads." He believes structured training programs, better student distribution across hospitals, and investment in simulation labs could help address the issue.

Gaps in Medical Training and the Global Competency Divide

Building on this, Prof. Nzerue highlighted the differences in medical training between Sub-Saharan Africa and developed countries, particularly how curricular gaps affect students who migrate for further training.

"In the past, Nigerian medical education was so rigorous that when we came to the U.S., it felt like moving from a difficult level to an easier one," he said. "Second MB was harder than the USMLE exams." However, the situation has reversed. The lack of investment in modern medical education, including simulation-based learning and molecular medicine, has created a significant knowledge gap.

He provided an example: "A medical student in the U.S. studying pancreatic cancer learns about the KRAS oncogene, a key mutation that drives the disease. They are taught how targeted therapies block that pathway and make pancreatic cancer treatable. Meanwhile, a Nigerian medical student may learn the clinical symptoms and surgical options like the Whipple procedure but not the molecular biology behind treatment."

This knowledge disparity makes it harder for African-trained doctors to integrate into advanced healthcare systems without additional self-study. "Anyone who Japas and wants to practice abroad must read American textbooks and understand that the emphasis is different," he advised.

Rethinking Assessment and Medical Education Reform

Beyond the content of medical education, Prof. Nzerue emphasized the need to reform assessment methods to better prepare students for modern healthcare practice. He argued that assessment should go beyond note memorization and numerical grading to evaluate critical thinking, adaptability, and practical skills.

"In the U.S., we assess medical students on multiple dimensions—medical knowledge, patient care, system-based learning, and professional behavior," he explained. "But beyond that, students also evaluate their professors. If a lecturer is using the same slides from 2012 in 2025, students can call that out." He believes this type of bi-directional evaluation would improve teaching quality in African medical schools.

He also pointed out that exposure to real-world learning environments is just as crucial as lectures. "Students should gain knowledge from interacting with radiologists, surgeons, and public health experts.

They should learn how to extract knowledge from medical journals and scientific meetings, not just textbooks," he said.

Additionally, he stressed the need for reforms to ensure accountability in medical education. "If a professor is known for harassing students, particularly female students, there should be mechanisms to remove them. If evaluation systems are left in stone, education suffers."

Looking Ahead: The Future of Medical Education in Sub-Saharan Africa

Reflecting on the state of medical education in Nigeria, Prof. Nzerue emphasized that the challenges go beyond funding. While financial investment is necessary, real progress requires a shift in teaching methodologies, technological adoption, and patient-centered care.

He noted that Sub-Saharan African institutions must embrace problem-based learning, simulation training, AI-driven education, and virtual teaching methods to remain competitive in global medical education. More importantly, he stressed the need for policy reforms that retain trained professionals and provide them with the resources needed to apply their skills locally. "If we do not innovate, we risk falling further behind global medical education standards," he warned.

The future of medical education in Nigeria depends on a willingness to adapt. By investing in modern teaching methods, embracing technology, and improving the learning environment for both students and patients, Nigerian medical schools can train a new generation of highly skilled and adaptable physicians capable of driving meaningful change in healthcare.

The Way Forward: Can Medical Education in Sub-Saharan Africa Be Fixed?

Despite the challenges, he remains hopeful that medical education in Africa can improve if the right steps are taken. "We need political will," he stated. "If governments, universities, and stakeholders come together to prioritize quality training, increase funding for research, improve salaries for lecturers, and modernize curricula, we can turn things around." He warned that failure to act will have dire consequences. "If we don't invest in medical education today, we'll face a future where our healthcare systems are completely dependent on foreign-trained doctors."

As the conversation ended, one thing was clear: the problems in medical education are well-known, and the solutions are within reach. What remains to be seen is whether those in power are willing to act before it's too late.

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