



## Bridging the Neurosurgical Gap in Nigeria: A Holistic Perspective on Access, Equity, and Healing

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**Received:** September 29, 2024

**Published:** December 28, 2025

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### Abstract

Neurosurgical disorders represent a critical and growing health burden in low- and middle-income countries. In Nigeria, where over 200 million people live with limited access to neurosurgical services, the challenge extends beyond the operating room. With only around 132 practicing neurosurgeons—concentrated in urban hubs—the workforce shortage leaves millions underserved. This article explores Nigeria's neurosurgical crisis through a holistic lens, integrating biomedical, psychosocial, cultural, and systemic dimensions of health. We argue that bridging the gap requires not only expanding training and infrastructure but also addressing financial inequities, leveraging traditional health systems, promoting preventive strategies, and integrating community-based care. By combining modern neurosurgical advances with holistic principles of patient-centeredness, equity, and resilience, Nigeria can develop a neurosurgical care system that honors both cutting-edge science and the lived realities of its people.

**Keywords:** Neurosurgery; Equity; Healing

### Introduction

Neurosurgery is often regarded as the pinnacle of modern biomedical science—technically sophisticated, resource-intensive, and highly specialized. Yet, in many parts of the world, neurosurgical need outpaces access by a staggering margin. Nigeria exemplifies this global challenge. With its population surpassing 218 million, the country faces a neurosurgeon-to-population ratio of approximately 1:1.65 million—far below the international recommendation of 1:100,000.

The discourse on neurosurgery in Nigeria has largely centered on workforce and infrastructure gaps. While these remain urgent, a strictly biomedical narrative risks overlooking the broader context of health and healing. Patients do not experience neurosurgical disease in isolation; they confront economic hardship, cultural

perceptions of illness, stigma, reliance on traditional medicine, and fragile health systems. For care to be truly transformative, it must engage with these layers.

#### **Neurosurgery in Nigeria: More than an operating room crisis** **Biomedical dimension**

Traumatic brain injury from road traffic accidents, congenital hydrocephalus, brain tumors, and spinal cord injury dominate neurosurgical case loads in Nigeria. Mortality and disability remain high, often due to delayed presentation, lack of imaging, or shortages of consumables. Expanding surgical training programs and strengthening hospital infrastructure remain crucial, but by themselves, these measures do not fully capture the complexity of access.

## Psychosocial dimension

Families of patients often face catastrophic health expenditures. With limited insurance coverage, neurosurgical procedures can plunge households into long-term poverty. Caregivers also endure significant psychological stress, compounded by cultural stigma associated with neurological illness. Holistic care must therefore incorporate counseling, social support, and financial risk protection.

## Cultural dimension

In many Nigerian communities, neurological diseases are interpreted through spiritual or cultural frameworks. Seizures or head injuries may first be addressed by traditional healers, delaying biomedical care. Rather than dismissing these practices, a holistic strategy would foster dialogue and respectful integration—training traditional healers to recognize red flags and refer patients early.

## Systemic dimension

Neurosurgical inequity reflects deeper systemic issues: poor road safety enforcement, limited emergency transport, and fragile referral networks. Preventive strategies—such as road safety campaigns, helmet laws, and community education—are as vital as expanding neurosurgical theaters.

## Towards a holistic neurosurgical strategy

### Integrative workforce development

- Beyond training neurosurgeons, Nigeria should invest in multidisciplinary teams: neuro-anesthetists, neuro-nurses, physiotherapists, rehabilitation specialists, and mental health professionals.
- Incorporating traditional healers into referral networks can build trust and reduce delays.

### Community-based care and prevention

- Community health workers can deliver first aid, provide education on head trauma, and support rehabilitation at home.
- Prevention campaigns addressing road safety, perinatal care, and early childhood infections reduce future neurosurgical burden.

## Patient-centered healing

- Holistic neurosurgery must consider not only the diseased brain or spine but also the patient's mind, spirit, and family.
- Post-surgical rehabilitation should integrate physiotherapy, psychotherapy, and spiritual support for holistic recovery.

## Equitable financing

- Integrating neurosurgical care into the National Health Insurance Authority's benefit package would reduce catastrophic out-of-pocket spending.
- Public-private partnerships and NGO-supported funds can bridge financing gaps.

## Technology as a bridge

- Tele-neurosurgery and mobile health platforms can connect rural patients with specialists.
- Low-cost innovations—such as 3D-printed surgical tools and open-source shunt systems—offer sustainable pathways to scale.

## Results

The synthesis yielded four major findings:

- **Severe Workforce Shortage:** Nigeria has only ~132 practicing neurosurgeons and ~114 residents, equating to one neurosurgeon per 1.65 million people. This falls well below the WFNS recommendation of one per 100,000. Most neurosurgeons are concentrated in southern urban centers (Lagos, Ibadan, Enugu, Abuja), leaving northern and rural states underserved.
- **Infrastructure Gaps:** <20% of neurosurgical-capable facilities possess dedicated neurosurgery operating rooms. Only a fraction have functional CT or MRI, and intensive care support is often inadequate. Consumables like shunts and drills are inconsistently available.

- **Socioeconomic and Cultural Barriers:** Out-of-pocket expenditure remains the primary financing model, often pushing families into catastrophic health spending. Cultural perceptions of neurological illness drive patients first to traditional healers, delaying hospital presentation.
- **Emerging Opportunities:** Private training centers like Memfys Hospital provide additional residency capacity.

Telemedicine initiatives show promise in bridging geographic gaps.

Preventive strategies (road safety enforcement, community education) are underutilized but hold significant potential.

## Discussion

The findings illustrate that Nigeria's neurosurgical gap is multifactorial. While biomedical capacity (workforce and equipment) remains the most visible barrier, true access is determined by psychosocial, cultural, and systemic dynamics.

- **Biomedical:** Increasing residency slots and upgrading infrastructure are necessary but insufficient in isolation.
- **Psychosocial:** Addressing financial protection through inclusion of neurosurgical procedures in the National Health Insurance Scheme is critical.
- **Cultural:** Partnerships with traditional healers could shorten referral delays, creating a culturally respectful interface between community and hospital.
- **Systemic:** Road traffic injuries—Nigeria's leading neurosurgical emergency—require multisectoral action in road safety, enforcement of helmet/seatbelt laws, and emergency transport systems.

Holistic medicine emphasizes person-centered, integrative care. Applying this lens to neurosurgery redefines success not only by surgical volumes but also by equitable access, cultural inclusivity, rehabilitation, and financial protection. This aligns with global calls for "Global Surgery 2030," which frames surgical access as a key pillar of universal health coverage [1-8].

## Conclusion

Neurosurgery in Nigeria remains critically underdeveloped, with severe shortages in workforce and infrastructure compounded by cultural and systemic barriers. Bridging this gap requires a holistic strategy—one that expands training and infrastructure while integrating preventive strategies, financial protection, psychosocial support, and respectful collaboration with community-based care models.

By reimagining neurosurgery through a holistic lens, Nigeria has the opportunity not only to increase surgical volumes but also to deliver care that is equitable, culturally sensitive, and sustainable. Such an approach could serve as a model for other low- and middle-income countries grappling with similar challenges.

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