Repositioning Anatomists in Nigeria for National Development: Challenges and Policy Perspectives, Beyond the Morgue and Classroom

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Submitted on 07/27/2025
Accepted on 11/06/2025

DOI: https://doi.org/10.47456/hb.v6i4.49510

ABSTRACT

Anatomists in Nigeria continue to be perceived primarily as educators and custodians of cadavers—roles rooted in colonial medical traditions. This limited view has obscured the wider relevance of anatomical science in national development. In contrast, global practice now positions Anatomists as integral contributors to surgical training, forensic investigation, biomedical innovation, and public-health research. This paper, titled Repositioning Anatomists in Nigeria for National Development: Challenges and Policy Perspectives, Beyond the Morgue and Classroom, critically examines the socio-institutional and legal factors that confine Nigerian Anatomists to narrow professional roles. It adopts a narrative literature review and policy-analysis approach to evaluate global best practices, identify structural barriers, and propose actionable reforms for Nigeria. Key findings reveal persistent stereotypes, outdated curricula, inadequate policy recognition, and the continued enforcement of the obsolete Anatomy Act 1933, while the proposed Anatomy Bill 2021, which would empower Anatomists through professional regulation and broader practice rights remains unpassed. The paper calls for curriculum modernization, policy advocacy, interprofessional collaboration, and the establishment of a functional Anatomy Council of Nigeria. Repositioning the discipline beyond the morgue and classroom is essential for integrating Anatomists into clinical, forensic, research, and technological sectors. Doing so will not only elevate the profession but also strengthen Nigeria's healthcare, innovation, and scientific-development capacity for the 21st century.

Keywords: anatomy education; professional development; forensic application; biomedical innovations; health policy reform; Nigeria.

INTRODUCTION

Anatomy is the foundational science of all medical and health-related professions. A robust understanding of the human body's structure underpins accurate diagnosis, effective surgery, forensic investigation, and cutting-edge research (TAYLOR et al., 2018). However, in Nigeria, Anatomists are frequently stereotyped as limited to mortuary work or academic classrooms, while other health professionals - such as medical doctors, nurses, pharmacists, and radiographers - are viewed as more essential to healthcare delivery. This narrow perception persists despite global trends showing Anatomists thriving in diverse, impactful roles (UDEH et al., 2023).

Repositioning Anatomists beyond the morgue and classroom is essential for Nigeria's medical education quality, clinical excellence, forensic capacity, and biomedical innovation. This paper identifies the roots of this professional discrimination, illustrates the expanded scope of Anatomy globally, and proposes actionable strategies for repositioning Anatomists as indispensable players in national development.

BACKGROUND AND SIGNIFICANCE

Historical Context

Traditionally, Anatomy training focused on cadaveric dissection, with Anatomists acting primarily as custodians of dead bodies and lecturers (BERESHEIM, 2024). In colonial and early post-colonial Nigeria, medical curricula modeled British systems, reinforcing a limited view of Anatomy as purely academic. Over time, this perception solidified into structural barriers: few hospitals or research institutions formally employ Anatomists outside teaching roles, and there is scant integration into clinical or forensic teams (WILSON et al., 2020).

Globally, the evolution of Anatomy has mirrored technological and clinical advances, transitioning from purely descriptive dissection in the 19th century to applied and digital anatomy in the 21st century. This shift has redefined the Anatomist's identity from academic teacher to interdisciplinary biomedical professional.

Global Evolution of Anatomy

Internationally, the discipline has shifted toward applied and interdisciplinary practice. In the UK and US, Anatomists work alongside surgeons, radiologists, and pathologists to deliver advanced surgical training, develop simulation tools, and innovate in tissue engineering and regenerative medicine (WICRAMASINGHE at al., 2022; CORNEJO et al., 2022). Forensic Anatomists are central to human identification in mass disasters and complex crime scenes (VASWANI et al., 2024). Biomedical Anatomists collaborate with engineers to design prosthetics and medical devices, while educational Anatomists lead the development of VR and 3D learning resources (CORNEJO et al., 2022; PEZZINO et al., 2025).

These examples highlight a significant gap between Nigeria's static perception of Anatomy and its evolving global scope.

The Gap This Study Addresses

Despite Anatomy's relevance, Nigerian Anatomists remain professionally under-recognized due to entrenched misconceptions, inadequate policy frameworks, limited practical training, and lack of public awareness (WILSON et al., 2020; OWOLABI at al., 2022). This paper addresses this gap by advocating for the full integration of Anatomists into clinical, forensic, research, and technological domains to maximize their contributions to healthcare quality, research output, and national development.

METHODOLOGY

This article adopts a narrative literature review and policy-analysis approach. Relevant peer-reviewed publications, reports of the Anatomical Society of Nigeria, and international policy documents were reviewed to identify global best practices in anatomy education, research, and professional regulation. Emphasis was placed on their applicability to the Nigerian context, highlighting gaps in existing frameworks such as the Anatomy Act 1933 and proposing actionable strategies for reform.

Current Challenges in Nigeria

1. Persistent Stereotypes

The belief that Anatomists are only suited to manage corpses or teach theory diminishes their potential contributions. This view is reinforced by poor public understanding and institutional biases.

2. Limited Career Pathways

Unlike doctors or medical laboratory scientists, Anatomists have few opportunities for clinical practice, forensic work, or industry placements. Most end up as lecturers without clear progression beyond academia.

3. Policy and Regulatory Gaps

The Medical and Dental Council of Nigeria (MDCN) and related bodies lack explicit policies recognizing Anatomists as core healthcare or forensic professionals. As a result, they are excluded from multidisciplinary hospital teams or forensic units.

4. Outdated Curricula

Many universities still emphasize theoretical gross anatomy without practical modules in radiological anatomy, clinical anatomy, forensic anthropology, or medical device design.

5. Lack of Infrastructure and Funding

Dissection labs are underfunded; advanced tools like plastination, 3D printing, or VR dissection tables are rare in Nigerian institutions.

Local Context and Emerging Efforts in Nigeria

Although formal recognition of applied or clinical anatomy roles is still limited, several Nigerian universities have begun integrating modern perspectives into their programmes. For instance, the University of Ibadan offers postgraduate tracks that include Genetics and Forensic Anatomy, reflecting a growing awareness of applied anatomy in research and medico-legal contexts. Other institutions have initiated internal projects on cadaver preservation, embalming safety, and anatomical research methods aimed at improving teaching quality and compliance with ethical standards. These efforts, though still modest, demonstrate a gradual shift toward

applied anatomy education and underscore the readiness of Nigerian Anatomists to expand their professional roles once an updated regulatory framework is implemented.

These systemic issues underscore the urgent need for coordinated policy, educational, and infrastructural reforms addressed in the subsequent recommendations. Aligning these actions with Nigeria's broader health and educational goals will help integrate Anatomists more effectively into national development efforts

Contemporary Global Practices: What Nigeria Can Learn

Globally, the practice of Anatomy has evolved into a dynamic, applied science that cuts across clinical care, forensic investigation, biomedical research, and technological innovation. Countries that have expanded the role of Anatomists provide strong models for Nigeria to adapt.

1. Clinical Anatomy and Surgical Innovation

In the United Kingdom, Clinical Anatomists work closely with surgeons to develop advanced dissection workshops, run surgical simulation centers, and design pre-operative planning modules. The Royal College of Surgeons of England, for instance, integrates Anatomists into surgical skills courses that improve patient safety and trainee competence (WICKRAMASINGHE et al., 2022). A practical scenario is a Clinical Anatomist preparing a customized cadaveric model for maxillofacial surgeons planning a complex tumor resection, reducing intraoperative complications.

This expanded clinical collaboration underscores the Anatomist's indispensable role as a surgical educator and research partner. By analyzing anatomical variations, coordinating dissection-based training, and developing imaging-assisted surgical guides, Anatomists directly contribute to improving operative precision, patient safety, and residency outcomes (WICKRAMASINGHE et al., 2022).

2. Forensic Anatomy and Medico-Legal Services

In South Africa, Anatomists have played critical roles in post-apartheid exhumations and the identification of missing persons (VASWANI et al., 2024). For example, Anatomists trained in forensic anthropology assisted in uncovering mass graves and identifying skeletal remains, offering closure to families and supporting justice processes. In the United States,

Anatomists are vital members of medico-legal teams, applying osteology and comparative morphology to solve homicide cases and mass disasters (DEKOSTER, 2021). A realistic scenario is an Anatomist analyzing skeletal trauma patterns to determine the cause of death in a criminal investigation.

In these settings, Anatomists serve as the bridge between biological structure and legal evidence. Their expertise in skeletal morphology, trauma pattern analysis, and post-mortem reconstruction provides objective data crucial for court testimony and humanitarian investigations. This professional engagement positions Anatomy as an essential discipline in national security, disaster management, and justice delivery (VASWANI et al., 2024).

3. Biomedical Research and Regenerative Medicine

At leading universities like Harvard, Anatomists partner with stem cell biologists and bioengineers to develop bioartificial organs, tissue grafts, and anatomical scaffolds (CORNEJO et al., 2022). For instance, Atala (2020), engineered tissue for bladder augmentation by combining surgical anatomy with stem cell technology. A practical scenario would involve a Clinical Anatomist collaborating with bioengineers to design a 3D-printed scaffold for cartilage regeneration in osteoarthritis patients.

Through such partnerships, Anatomists contribute foundational knowledge of tissue microarchitecture, vascularization, and organ morphology that guides the design of bioengineered scaffolds and prosthetic models. Their integration within multidisciplinary research teams ensures anatomical accuracy and translational relevance in regenerative medicine (ATALA, 2020; CORNEJO et al., 2022).

4. Medical Education Technology and Innovation

Modern Anatomists lead the development of virtual dissection tables, 3D holographic anatomy, and plastinated cadaver models for sustainable teaching. Monash University in Australia developed the world's first plastinated prosection bank, allowing medical schools with limited cadaver access to provide realistic anatomy training (PEZZINO et al., 2025). A scenario could be a Nigerian medical school partnering with international institutions to develop digital anatomy banks, enabling students in resource-limited settings to access high-quality dissection content.

Anatomists lead the pedagogical design and validation of these digital resources, ensuring that virtual and augmented platforms replicate the tactile and spatial fidelity of traditional dissection. By combining educational psychology with technological innovation, they enhance student engagement, retention, and ethical sustainability in anatomy teaching (PEZZINO et al., 2025).

5. Ergonomics and Occupational Health

In Japan, Anatomists contribute to research on workplace ergonomics, informing the design of furniture, factory workflows, and injury prevention strategies (TUBBS et al., 2009). This research has reduced musculoskeletal disorders among workers and improved productivity. Nigerian Anatomists could apply similar approaches by partnering with industries and occupational health teams to address the high burden of postural and repetitive strain injuries among factory workers and office staff.

Within this interdisciplinary domain, Anatomists analyze musculoskeletal biomechanics, posture, and functional anatomy to design safer work environments and reduce occupational injuries. Their collaboration with industrial engineers and physiotherapists demonstrates the discipline's applied value beyond medical schools, extending into national productivity and workplace health policy (TUBBS et al., 2009).

These global practices show that Anatomists, when properly integrated and empowered, are indispensable across multiple sectors.

Opportunities for Nigerian Anatomists

The examples above not only illustrate Anatomy's evolving global relevance but also provide a template Nigeria can adapt within its existing educational and health structures. Integrating these models requires context-specific adjustments to policy, training, and resource allocation.

Drawing lessons from global examples, Nigerian Anatomists can expand their impact through:

- **Clinical Integration:** Partnering with surgical teams for advanced dissection, variation analysis, and simulation-based training (WICKRAMASINGHE et al., 2022).
- **Forensic Services:** Establishing forensic anthropology units within police crime labs

and disaster victim identification teams (VASWANI et al., 2024).

- **Biomedical Research:** Leading translational studies in tissue engineering and regenerative medicine (CORNEJO et al., 2022).
- **Educational Innovation:** Creating virtual dissection labs and 3D anatomical models for modern teaching (PEZZINO et al., 2025).
- **Public Health:** Contributing to ergonomics, injury prevention, and occupational health interventions (TUBBS et al., 2009).

Legal Framework and Professional Empowerment of Nigerian Anatomists

1. Current Legal Constraint: The Anatomy Act of 1933

The practice of Anatomy in Nigeria continues to be regulated under the *Anatomy Act 1933* (Cap. 17, Laws of the Federation of Nigeria), a colonial-era legislation enacted on 30 March 1933. The Act's provisions are narrowly focused on licensing schools of anatomy, authorizing the use of cadavers for teaching, and prescribing penalties for misuse of human remains (LAWGLOBALHUB, 2022).

Key restrictive clauses include:

- **Section 2** – Empowers the Minister of Health to grant licences to practise anatomy only within approved "schools of anatomy," thus confining practice to a purely academic setting.
- **Section 3** – Allows the use of human bodies for anatomical examination under limited conditions, primarily for educational purposes.
- **Section 5** – Requires official certification before a body may be removed for anatomical study, emphasizing regulatory control of cadavers rather than professional development.
- **Section 11** – Provides penalties (up to three months' imprisonment or ₦100 fine) for contraventions, illustrating the Act's disciplinary rather than developmental intent.

This outdated framework does not:

1. Establish a regulatory council for anatomists;

2. Recognize applied or professional roles such as forensic, clinical, or biomedical anatomy;
3. Address modern innovations like virtual dissection, body donation programs, or digital-anatomy technologies; and
4. Provide a platform for continuing professional education or certification.

Consequently, the 1933 Act confines Nigerian anatomists to cadaver handling and classroom instruction, leaving no legal room for their integration into contemporary healthcare, forensic, or research systems (ASN, 2021).

2. Proposed Reform: The Anatomy Bill 2021 ("Anatomy Law 2023")

In response to these constraints, the Anatomical Society of Nigeria spearheaded the *Anatomy Bill 2021*, intended to repeal the obsolete 1933 Act and establish the **Anatomy Council of Nigeria**. The Bill, submitted to the National Assembly and still pending passage as of 2025, seeks to modernize the profession and empower anatomists to assume multidisciplinary roles (ASN, 2021).

The Bill's key empowering provisions include:

- **Section 1-5** – Establishment of the *Anatomy Council of Nigeria* to regulate anatomy education, practice, and ethics.
- **Section 39** – Broadened definition of "Anatomy practice" to include teaching, biomedical and forensic research, and service delivery in anatomy laboratories nationwide.
- **Sections 40-45** – Provision for professional registration, licensing, and continuous professional development of anatomists.
- **Section 54** – Penalties for interference with Council functions, including imprisonment of not less than five years for violations.

If enacted, the Bill would formally recognize anatomists as biomedical professionals, provide a self-regulating body, and integrate them into clinical and research frameworks at par with other health-science disciplines.

1. Implications and the Way Forward

The persistence of the 1933 Act restricts professional mobility and recognition, while the non-passage of the 2021 Bill delays the evolution of anatomical practice in Nigeria. Without an updated law, anatomists remain legally confined to academic dissection despite their qualifications for roles in forensic analysis, surgical simulation, regenerative research, and public-health innovation. Passing the new Anatomy Bill is thus a legal and developmental imperative for Nigeria's biomedical and educational advancement.

Recommendations and Call to Action

1. Policy Reforms

The Medical and Dental Association of Nigeria (MDCN) and National Universities Commission should create frameworks to formally recognize Anatomists' expanded roles in healthcare, forensic science, and research.

2. Curriculum Development

Universities should update Anatomy curricula to include modules in clinical anatomy, radiological anatomy, forensic anthropology, plastination, and bioinformatics.

3. Capacity Building

Offer continuing professional development and scholarships for specializations abroad, enabling skill transfer.

4. Student Engagemen

To cultivate early interest in applied anatomy, students should participate in innovation projects such as 3D model creation, digital-anatomy research, and community-based forensic outreach. Establishing student chapters within the Anatomical Society of Nigeria can further strengthen professional identity and mentorship pipelines.

5. Infrastructure Investment

Fund modern dissection labs, simulation centers, and VR/3D printing units.

6. Economic Feasibility and Funding Strategies

Implementing these reforms requires sustainable financing. Nigerian universities can access TETFUND research grants, National Research Fund (NRF), and international cooperation programs such as DAAD or Erasmus +. Public–private partnerships with teaching hospitals, VR-technology firms, and biomedical start-ups can also reduce costs through shared infrastructure. A phased approach, beginning with affordable digital resources before high-cost laboratories will ensure progressive adoption within available budgets.

Beyond public education, Nigerian Anatomists should actively engage with policy-making processes through professional associations and representation in health councils. This advocacy ensures recognition of their rights and obligations within multidisciplinary healthcare systems and contributes to the formulation of national policies that reflect the evolving roles of Anatomists.

7. Public Awareness

The Anatomical Society of Nigeria should lead advocacy campaigns showcasing the diverse relevance of Anatomists.

8. Interprofessional Collaboration

Encourage joint workshops, research, and practice with surgeons, forensic pathologists, engineers, and public health experts to break down professional silos.

CONCLUSION

Nigerian Anatomists have the capacity to transcend traditional academic and mortuary boundaries through collaborative reform and innovation. With structured policy support, targeted training, and interdisciplinary engagement, they can progressively assume leadership roles in surgical training, forensic science, biomedical research, and public health.

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