

# The role of nurses and midwives in medical laboratory investigations in sub-Saharan Africa

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## Abstract

**Introduction:** Across the globe, nurses and midwives play a crucial role in providing care to patients in healthcare facilities. They often contact the patient, providing direct care as directed by medical doctors or clinical officers. Traditionally, the role of nurses and midwives in the clinical diagnosis process is to coordinate the clinical diagnosis process—which includes laboratory diagnosis requests—from diagnosticians to the clinical laboratory. In these settings, these diagnosticians are general or specialist medical doctors. However, in some regions in sub-Saharan Africa (SSA), nurses and midwives are primary diagnosticians in healthcare facilities.

**Methodology:** We present a perspective on the role of nurses and midwives in medical laboratory investigations in SSA. We highlight how, on top of nursing and midwifery roles, nurses take up the role of diagnosticians in facilities where doctors are few or are absent and what key issues are worth consideration. Furthermore, we present how efficient collaboration between nursing midwifery and medical laboratory diagnostic systems facilitates effective patient management.

**Conclusion:** Emphasizing training on laboratory test utilization for nurses and midwives in SSA is vital for enhancing healthcare outcomes.

## KEYWORDS

diagnosis, laboratory, midwives sub-Saharan Africa, nurses

## 1 | INTRODUCTION

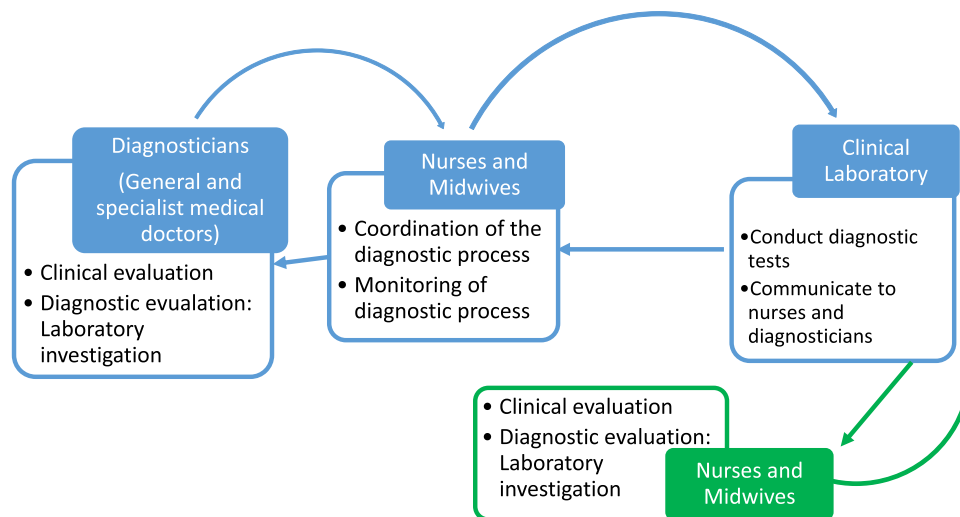
Across the globe, nurses and midwives play a crucial role in providing care to patients in healthcare facilities. They often contact the patient, providing direct care as directed by medical doctors or clinical officers.<sup>1</sup> Traditionally, the role of nurses and midwives in the clinical diagnosis process is to coordinate the clinical diagnosis process—which includes laboratory diagnosis requests—from diagnosticians to the clinical laboratory. In these settings, these

diagnosticians are general or specialist medical doctors.<sup>2,3</sup> However, in some regions in sub-Saharan Africa (SSA), nurses and midwives are primary diagnosticians in healthcare facilities.<sup>4</sup> It is, therefore, unsurprising that nurses and midwives can be the sole healthcare providers in some healthcare institutions.<sup>5</sup> In these places, nurses and midwives consequently assume roles such as requesting and interpreting laboratory tests for patients (Figure 1).

In an era of evidence-based medical practice where clinical and laboratory investigations are crucial to patient management, the link

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**FIGURE 1** Summarized diagnostic process in traditional practice (blue) compared to nontraditional practice in some facilities in sub-Saharan Africa (green).

between nursing and midwifery professions and the laboratory is therefore of significant importance.<sup>6</sup> We present a perspective on the role of nurses and midwives in medical laboratory investigations in SSA. We highlight how, on top of nursing and midwifery roles, nurses take up the role of diagnosticians in facilities where doctors are few or are absent and what key issues are worth consideration. Furthermore, we present how efficient collaboration between nursing and, midwifery and medical laboratory diagnostic systems facilitates effective patient management.

### 1.1 | Healthcare systems in SSA: The role of nurses and midwives in laboratory investigations

The healthcare system in SSA is structured into four levels: community, primary, secondary, and tertiary. In the community facilities, there needs to be more organized laboratory systems, and trained community members or health surveillance assistants to perform point-of-care testing for common endemic infections.<sup>7</sup> At the primary level, healthcare facilities are typically managed by nurses-midwives or medical assistants who may have a laboratory assistant or technician on-site. However, nurses and midwives primarily conduct basic tests, including point-of-care tests for infectious diseases and rapid tests for maternity admissions. In secondary-level facilities, which are district hospitals overseeing multiple primary facilities, medical doctors are present, and a well-established laboratory diagnosis system exists. While doctors are responsible for ordering medical laboratory tests, due to the high patient load, nurses and midwives often assume the role of ordering routine tests. The tertiary level includes both general and specialist doctors, and specialized tests are conducted in the laboratory system at this level. Here, nurses and midwives play a coordinating role, ensuring that test requests from doctors are sent to the laboratory and that the results are relayed to the requesting officers. It is,

however, not uncommon that even at tertiary level, nurses and midwives take the role of diagnosticians even at the tertiary level, since the shortage of medical doctors is still prevalent.

The role of nurses and midwives as primary diagnosticians at nearly all levels of care in many countries in the SSA (and Africa in general) is heightened by the shortage of healthcare workers, particularly physicians. A 2022 study published in the *British Medical Journal Global Health* reported that of the estimated 3.6 million healthcare workers available in surveyed 47 countries in Africa, 37% were nurses, 9% were doctors and 10% were laboratory personnel.<sup>8,9</sup> While the shortage of healthcare workers hits nearly all cadres—nurses and doctors inclusive—it is evident that comparatively there is more presence of nurses than doctors and laboratory personnel per population in many countries in the SSA region. Only four countries namely, Mauritius, Namibia, Seychelles, and South Africa, have higher worker-to-population ratio than 4.45 health workers per 1000 people threshold by World Health Organisation (WHO)<sup>9</sup> Thus, in many facilities in SSA, nurses assume the role of primary diagnosticians and even the roles of laboratory personnel.<sup>2</sup>

### 1.2 | Challenges of medical laboratory investigation and effect on patient outcomes

Medical laboratory practice in many countries SSA already faces significant challenges. These challenges include non-prioritization, leading to limitations on funding and general under-investment. Consequently, most laboratories need better infrastructure and systems, lack recognized specialist expertise and are generally not part of the decision-making process at the administrative and patient-management level. The negative impact on patient management and general healthcare delivery has been lucidly documented<sup>10,11</sup> Amidst these systemic challenges in the diagnostics system, the role of

nurses and midwives in the diagnostic process has become of particular focus.

To begin with, the role played by nurses and midwives in the laboratory diagnostics process in SSA is, by principle, for the patient's good intentions; even with the limited presence of medical doctors, the patient is still attended to. These roles have proven critical in many healthcare settings in the SSA region. Thus, these roles have been pivotal and beneficial.<sup>2</sup> However, on the other side, significant challenges regarding laboratory services and patient outcomes exist.

The primary challenge is that nurses and midwives' role widens their responsibility scope, often outside their training coverage<sup>12</sup> The traditional diagnostic process, which involves the collaboration of doctors as primary diagnosticians, nurses, Midwives and laboratory personnel, assigns clear roles to each player to ensure quality results. The additional roles may decrease the efficiency of service delivery in both the nursing and the diagnostician aspects. Furthermore, where nurses have no additional training to carry out the assumed duties, the quality of the service would be of particular interest. To the patient, this has the effect of a decrease in the quality of service.<sup>2</sup>

Furthermore, the requesting interpretation or even testing roles assumed by the nurses and midwives are mostly limited to basic laboratory tests. Advanced laboratory diagnostic tests can only be made available to the patient with primary diagnosticians. Thus, even in dire need of more specific tests, a patient is limited by the availability of expertise. This impacts patients and their rights to access to healthcare.

## 2 | KEY CONSIDERATIONS AND RECOMMENDATIONS

### 2.1 | Regulatory bodies, law, and ethic

The expanded role of nurses and midwives in diagnostic processes, including laboratory investigations, raises ethical concerns about the scope of their practice. Ethical guidelines, laws, and regulations should clearly define the limits of their responsibilities to ensure patient safety and quality of care. Legal recognition is essential to ensure that midwives can perform certain diagnostic tasks within the bounds of the law.

### 2.2 | Healthcare policies

The healthcare policies should standardized practices to ensure quality and good patient outcomes for the nurses and midwives involved in laboratory diagnostic processes. Roles and responsibilities for nurses and midwives should outline specific diagnostic responsibilities required trainings and expectations. Policymakers should also establishing a framework for continuous professional development to ensures that nurses and midwives stay updated

on requesting and interpreting laboratory results and advancements in diagnostic technologies.

The regulatory bodies in SSA should also establish clear licensing and certification processes for nurses and midwives involved in medical laboratory investigations. Removing unnecessary barriers to licensure and certification facilitates the full utilization of these professionals in diagnostic roles ultimately benefiting patient care and outcomes.

### 2.3 | Collaboration with laboratory professionals

Second, communication is another critical focus area between laboratory professionals, nurses, and midwives. Miscommunication, lack of understanding, and poor attitudes toward each other cause errors and delays in providing care to patients. There should be proper communication on the needs of the laboratory and also the needs of nurses and midwives with respect to requested laboratory tests.

### 2.4 | Resource management

The timely and effective clinical decision-making for clients/patients management by Nurses and Midwives is often hindered when essential reagents or test materials are unavailable in the laboratory. To address the issue both Governments and partner organization's must ensure consistent and sufficient supply of test materials particularly at primary and secondary level of healthcare service where a majority of patients seek medical assistance. Furthermore, in remote areas in sub-Saharan Africa, limited infrastructure is also a challenge to access medical laboratory services implementing sustainable infrastructure such as solar-powered facilities may ensure less interrupted and less expensive source of power. Additionally, health facilities must be supplied with piped water to ensure continuous operation of health facilities.

### 2.5 | Sustainability

To ensure the continued involvement of nurses and midwives In medical laboratory investigations, there is a need to provide ongoing training programs to keep them updated on the latest diagnostic techniques, equipment, and technologies focusing on basic diagnostic skills and advanced training for more complex procedures. Continuous education will enhance the quality of healthcare services provided by nurses and midwives hence improving patient outcomes. Additionally, countries need to establish mentorship programs where nurses and midwives can be paired with personel from the laboratory to facilitate knowledge transfer and skills development in laboratory diagnostic processes.

### 3 | CONCLUSION

Nurses and midwives play a vital role in medical laboratory investigations, particularly in SSA facing a shortage of laboratory personnel. Despite challenges such as resource limitations and systemic issues, these professionals demonstrate dedication to patient care. To address their challenges it is important to align ethical guidelines, laws, and regulations to define their scope of practice. Additionally, the collaborations between nurses and midwives and the laboratory should continue to ensure efficient utilization of diagnostics resources. In terms of quality, laboratories and nursing professionals should strive to ensure that processes conform to quality standards, from sample collection to analysis. Additionally, training for nurses and midwives on utilization of laboratory tests is also another important element to emphasize amongst nurses in SSA.

#### AUTHOR CONTRIBUTIONS

**Miriam Window:** Conceptualization; data curation; formal analysis; project administration; resources; writing—original draft; writing—review and editing. **Symon Fidelis Nayupe:** Conceptualization; data curation; formal analysis; resources; writing—original draft; writing—review and editing. **Mama T. Msiska:** Conceptualization; data curation; formal analysis; resources; writing—original draft; writing—review and editing. **Don E. Lucero-Prisno:** Conceptualization; data curation; formal analysis; resources; supervision; writing—review and editing.

#### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

#### DATA AVAILABILITY STATEMENT

This commentary did not generate any data. Data sharing is not applicable to this article as no datasets were generated or analyzed in this commentary.

#### TRANSPARENCY STATEMENT

The lead author Miriam Window affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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