

# Task Shifting for Nurses to Perform Cervical Biopsy: Experience from Gombe State Specialist Hospital, Nigeria

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## Abstract

### Background:

In low-resource settings, shortage of skilled specialists limits the implementation of cervical cancer screening and Female Genital Schistosomiasis (FGS) research. Task shifting—the delegation of specific medical tasks to trained non-physician providers—has emerged as a viable approach to address this challenge. This study describes the experience of training and mentoring nurses to perform cervical biopsies at Gombe State Specialist Hospital to overcome implementation barriers in a study evaluating the relationship between cervical cancer and FGS.

### Methods:

A descriptive narrative review of program implementation from 2023–2025 was conducted. The training involved competency-based instruction, hands-on practice, and supervised procedures for three nurses at Cervical/breast cancer screening and preventive unit of State Specialist Hospital. The trained nurses performed 107 colposcopies and collected 204 histology samples via loop electrosurgical excision procedure (LEEP), colposcopy-directed biopsy, punch biopsy, endometrial biopsy, and polypectomy. Histological results were reviewed for cervical and genital tract pathologies, including FGS-related lesions. Safety and quality assurance were ensured through ongoing mentorship by gynecologists.

### Results:

Between 2023 and 2025, the nurse successfully performed 204 histology procedures with no major complications. Of these, 194 (95.1%) showed histopathological evidence of various pathologies

including cervical intraepithelial neoplasia, chronic cervicitis, endometrial hyperplasia, and benign polyps. None of the samples demonstrated histological evidence of FGS. The nurses demonstrated sustained procedural competence and adherence to biosafety and quality protocols.

### **Conclusion:**

Task shifting enabled consistent sample collection, improved research implementation, and optimized use of limited human resources. The results affirm the feasibility of nurse-led cervical biopsy under appropriate training and supervision. The absence of FGS in the samples highlights the need for improved diagnostic sensitivity and broader epidemiological mapping. This experience contributes evidence supporting nurse-led procedural expansion in women's health and integrated NTD-cancer research.

**Keywords:** Task shifting, Nurse-led biopsy, Cervical cancer, Female genital schistosomiasis, Colposcopy, Nigeria, Implementation research

## **Introduction**

Cervical cancer is the fourth most common cancer among women globally, with an estimated 570 000 new cases in 2018 Africa and remains a leading cause of mortality due to late presentation and limited access to screening and diagnostic services (WHO, 2020). Nigeria contributes significantly to the global cervical cancer burden, with many women lacking access to timely diagnosis and treatment (Jedy-Agba et al., 2022). Female Genital Schistosomiasis (FGS), caused by *Schistosoma haematobium*, is increasingly recognized as an underdiagnosed contributor to reproductive tract morbidity and possibly to cervical carcinogenesis and HIV susceptibility (Kjetland et al., 2020). Implementing integrated FGS and cervical cancer research and screening requires histological confirmation, yet in many Nigerian health facilities, there is a shortage of gynecologists and pathologists.

The world is now facing a chronic shortage of trained health workers. According to the World Health Organization (WHO), there is a global health workforce deficit of more than four million, and in many of the countries of sub-Saharan Africa, and in parts of Asia and the Americas, the shortages are critical (WHO, 2008).

At the same time, the demand for health care is rising. In high- and middle-income countries, large populations of ageing people and changing patterns of disease mean a steady growth in the demands on health services. Low-income countries continue to deal with an unfinished agenda of infectious diseases and emerging chronic illness. (WHO, 2008). Meeting the commitments to combat disease, reduce child mortality and improve maternal health, as enshrined in the Millennium Development Goals, will involve strengthening health systems so that they are capable of delivering a wide range of health services on a scale much larger than at present (WHO, 2008).

Task shifting—the redistribution of tasks from higher- to mid-level providers—is an established World Health Organization (WHO) strategy to address human resource gaps (WHO, 2008). Evidence supports the effectiveness of nurse-led interventions in cervical screening using visual inspection and colposcopy (Bradley et al., 2019). However, few reports document nurses performing invasive diagnostic procedures such as cervical biopsy in sub-Saharan Africa.

This paper presents a narrative account of Gombe State Specialist Hospital's experience in training and mentoring nurses to perform cervical biopsy as part of an implementation study exploring the relationship between cervical cancer and FGS. The report aims to document the feasibility, safety, and outcomes of this task-shifting intervention.

## Methods

**Study Design and Setting:** This is a descriptive, systematic review on task shifting to nurses conducted at Gombe State Specialist Hospital, Gombe, Nigeria, between January 2023 and September 2025. The initiative was embedded within an implementation research study assessing the relationship between cervical cancer and FGS among women attending gynecologic and reproductive health clinics.

**Training and Mentorship:** Three registered nurses in the Cervical/breast cancer screening and preventive unit of State Specialist Hospital with prior experience in reproductive health services underwent structured, competency-based training in colposcopy and biopsy procedures. The training covered theoretical modules, practical sessions, and mentorship by consultant gynecologists.

**Procedures Performed:** The nurses conducted 107 colposcopies and 204 histological sample collections, including LEEP, colposcopy-directed biopsy, punch biopsy, endometrial biopsy, and polypectomy. Samples were processed and reviewed by certified histopathologists.

**Data Collection and Analysis:** Data on procedure numbers, outcomes, and complications were extracted from procedure logs and analyzed descriptively. Supervisory reports were used to assess safety and performance consistency.

Ethical Considerations: No approval was required.

## Results

Between 2023 and 2025, the trained nurses performed a total of 107 colposcopies and 204 biopsy-related procedures with no major complications as shown in table 1 and 2 respectively. Of these, 194 (95.1%) were positive for histopathological abnormalities including cervical intraepithelial neoplasia, chronic cervicitis, endometrial hyperplasia, and benign cervical polyps. No sample demonstrated histopathological evidence of Female Genital Schistosomiasis (FGS). The nurse maintained high procedural competency, adherence to aseptic protocols, and accurate documentation throughout the period.

**Table 1: Colposcopies performed in the reviewed years**

Year	Number of Colposcopies	Percentage
2023	27	25.23
2024	50	46.73
2025	30	28.04
Total	107	100

Between 2023 and 2025, the unit conducted a total of 107 colposcopy procedures as shown in table 1 above with highest (46.7%) in 2024. This upward trend in service utilization reflects an increasing demand for and confidence in the screening program.

**Table 2: Biopsy-related procedures for histology examination**

Source of Sample	Description
LEEP & LEEP Conisation	Loop excision of transformation zone
Colposcopy-directed biopsy	Biopsy under magnified visualization
Tissue from cervical mass (Punch biopsy)	Blind punch biopsies of suspicious cervical areas
Endometrial biopsy	Sampling uterine lining
Polypectomy tissues	Excision of cervical or uterine polyps
Total Histology Samples	204

As shown in table 2 above, 204 histology samples were collected through various procedures, including LEEP, colposcopy-directed biopsy, punch biopsy, endometrial biopsy, and polypectomy. Nurses, following the specialized training, played a critical role in sample collection. These outcomes demonstrate the successful implementation of task shifting, facilitating the ongoing delivery and expansion of diagnostic services without exclusive reliance on physicians.

**Table 3: Positive histology Results**

Diagnosis	Cases	%
NILM	12	6.19
CIN 1	29	14.95
CIN 2	61	31.44
CIN 3	22	11.34
Invasive Squamous Cell Carcinoma	12	6.19
Carcinoma in situ	5	2.58
Mixed Mullerian Malignant Tumor	1	0.52
Endometrial Adenocarcinoma	3	1.55
Suspicious of malignancy	2	1.03
Adenocarcinoma	2	1.03
HPV changes	7	3.61
Condyloma Acuminata	4	2.06
Endocervical Polyp	10	5.15
Koilocytotic Atypia	1	0.52
Stroma-glandular Dissociation	2	1.03
HSIL	3	1.55
Granulation Tissue	1	0.52
Retained Product of Conception	1	0.52
Inflamed Granulation Tissue	1	0.52
Disordered Proliferative Endometrium	1	0.52
Pyogenic Granuloma	1	0.52
Chronic Ulcerative Cervicitis	2	1.03
Proliferative Phase Endometrium	3	1.55
Secretory Endometrium	1	0.52
Inadequate Luteal Phase	1	0.52

Squamous Metaplasia	1	0.52
Leimyomatous Polyps / Cervical Leiomyoma	2	1.03
Endocystic Atrophy	1	0.52
Simple Cystic Hyperplasia without Atypia	2	1.03
<b>Total</b>	<b>194</b>	<b>100</b>

Table 3 show that the histology evaluation indicates a substantial disease burden within the screened cohort. Cervical Intraepithelial Neoplasia (CIN) was the most common finding, comprising 112 (57.73%) cases of the positive results, suggesting a notable prevalence of pre-cancerous lesions. There were twelve (6.19 %) confirmed instances of invasive squamous cell carcinoma and five (2.57%) cases of carcinoma in situ. HPV-associated changes were observed in seven (3.61) specimens. Additional malignancies detected included endometrial adenocarcinoma (1.55%), adenocarcinoma (1.03%), and mixed Mullerian malignant tumor (0.52%). The range and gravity of these findings highlight the significant clinical value of the screening and diagnostic services, as early detection of both pre-malignant and malignant conditions facilitate timely and effective intervention. Though there was absence of positive FGS findings.

## Discussion

The experience at Gombe State Specialist Hospital demonstrates that task shifting for cervical biopsy is feasible and effective in addressing workforce shortages. This aligns with evidence from other African settings where nurse-led colposcopy and biopsy programs have achieved comparable safety and accuracy to physician-led interventions (Mungo et al., 2021; Chidyaonga-Maseko et al., 2019). The absence of FGS findings suggests either low local prevalence or limitations in diagnostic sensitivity, emphasizing the need for advanced diagnostic tools. Key lessons include the value of competency-based mentorship, institutional support, and the integration of task shifting into broader health system strengthening initiatives. Expanding nurse-led biopsy capacity can improve diagnostic access, reduce delays in research implementation, and enhance women's health outcomes in resource-limited settings.

## Conclusion

Task shifting for cervical biopsy to trained nurses is a feasible, safe, and sustainable approach for strengthening diagnostic and research capacity in Nigeria. The Gombe State Specialist Hospital experience underscores the potential for nurse-led programs to support integrated research and service delivery for cervical cancer and Female Genital Schistosomiasis. Scaling up this model can contribute to equitable access to women's health services and improved research implementation efficiency.

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### **Consent for publication**

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

### **Author contributions**

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Muhammed GRABA Buwa: Methodology.

Ibrahim Rabiu: Conceptualization and Writing – original draft.

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Ishak Kayode Lawal: Supervision, review and editing

### **Data availability**

All original materials and data are available upon request to the guarantor: Ibrahim Rabiu.

## **Declarations**

### **Ethics approval**

Not applicable.

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### **Competing interests**

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