

Patterns and Trends of Clinical Service Utilization in a Nigerian Tertiary Hospital: A Three-Year Retrospective Review, 2023–2025.

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Abstract

Hospital service utilization data are essential for health system planning, policy development, and resource allocation, particularly in resource-limited tertiary institutions. This study examined clinical service utilization at the Federal University Teaching Hospital, Wukari (FUTH Wukari), Nigeria, over a three-year period from January 2023 to December 2025. A retrospective descriptive review was conducted using registers from wards, specialty and family medicine clinics, operating theaters, pharmacy, physiotherapy, laboratory, radio-diagnostics, NHIA/Staff clinics, and the Health Information Management unit. Data were analyzed using descriptive statistics in Microsoft Excel 2025.

The review recorded a total of 272,895 patient contacts and 1,047 major procedures. Outpatient services dominated, with Family Medicine and specialty clinics accounting for 133,978 contacts, representing nearly half of all encounters. NHIA/Staff clinics grew sharply to 12,863, while HIV clinics rose to 29,406. Laboratory Medicine processed 49,753 samples, and Pharmacy dispensed 32,186 contacts. Radio-diagnostics increased steadily to 678 clients in 2025, while physiotherapy services expanded from 19 patients in 2023 to 89 in 2025, totaling 144. Maternal and child health services showed exponential growth, with maternity admissions rising from 719 to 1,005, paediatric admissions from 504 to 776, and antenatal clinic visits from 1,307 to 1,535. General surgical admissions increased by 30.4 percent. Despite these expansions, intensive care unit (ICU) and high dependency unit (HDU) services remained unavailable throughout the review period.

The findings highlight outpatient, NHIA/Staff, HIV, diagnostic, and pharmaceutical services as the main drivers of hospital utilization. The exponential increases in maternity, pediatric, and antenatal services underscore the hospital's expanding role in maternal and child health, while physiotherapy

growth reflects rising demand for rehabilitative care. However, the absence of ICU and HDU facilities remains a critical gap, limiting the hospital's ability to manage complex emergencies. Addressing these gaps requires investment in infrastructure, workforce expansion, and revitalization of reproductive, maternal, newborn, and child health programs.

Keywords : Hospital utilization, Tertiary healthcare, Maternal health, Health planning, Nigeria

Introduction

Hospital service utilization data are critical for health system planning, policy development, and resource allocation, particularly in resource-limited settings. Tertiary hospitals in Nigeria face increasing patient demand, constrained resources, and evolving health needs. Utilization studies provide insight into service delivery patterns, highlight gaps in infrastructure, and inform strategies for improving efficiency and outcomes (WHO; 2020; Brown & colleagues; 2025)

Globally, retrospective reviews of hospital utilization have revealed that outpatient services often dominate patient contacts, while maternal and child health services remain central to hospital workloads (World Health Organization [WHO], 2020). In sub-Saharan Africa, studies emphasize the burden of communicable diseases, trauma, and reproductive health challenges as key drivers of hospital demand. Nigerian tertiary hospitals, such as those in Jos, Ibadan, and Enugu, have reported similar trends, with outpatient clinics, laboratory diagnostics, and pharmacy services accounting for the majority of patient encounters (WHO; 2020; Udoh et al., 2021).

Despite these findings, gaps persist in critical care infrastructure, including intensive care units (ICU) and high dependency units (HDU), limiting hospitals' capacity to manage complex emergencies. Furthermore, the expansion of health insurance schemes, such as the National Health Insurance Authority (NHIA), has begun to reshape utilization patterns by increasing access to staff and insured patient clinics (Etiaba et al., 2025; Jabber et al ., 2025).

This study contributes to the literature by presenting a three-year retrospective review of clinical service utilization at the Federal University Teaching Hospital, Wukari (FUTH Wukari), Nigeria. It highlights trends across outpatient, diagnostic, maternal, child health, and insurance-linked services, while identifying critical gaps in infrastructure and workforce.

Significance of the Study

This study provides essential evidence for hospital administrators, policymakers, and stakeholders on the evolving demand for clinical services in a tertiary hospital setting. By highlighting exponential growth in outpatient, maternal, child health, and insurance-linked services, it underscores the need for strategic investment in infrastructure and workforce. The findings also reveal critical gaps in intensive care and emergency preparedness, offering a road map for strengthening service delivery, optimizing resource allocation, and improving patient outcomes in Nigeria's health system (Igechi, et al., 2025).

Aim

The aim of this study was to evaluate patterns and trends of clinical service utilization at the Federal University Teaching Hospital, Wukari (FUTH Wukari), Nigeria, over a three-year period (2023–2025), in order to inform health system planning, resource allocation, and service delivery improvement.

Objectives

1. To quantify overall hospital service utilization across wards, outpatient clinics, diagnostic units, and specialty services between 2023 and 2025.
2. To analyze growth trends in key service areas, including Family Medicine, NHIA/Staff clinics, HIV clinics, maternity, paediatrics, antenatal care, pharmacy, physiotherapy, and radio-diagnostics.
3. To assess workloads and identify sections with the highest demand.
4. To evaluate surgical procedures and caesarian section trends as indicators of operative service utilization.
5. To identify critical service gaps, particularly the absence of intensive care unit (ICU) and high dependency unit (HDU) facilities.
6. To provide evidence-based recommendations for infrastructure expansion, workforce strengthening, and revitalization of reproductive, maternal, newborn, and child health (RMNCH) programs.

Methodology

Study Design

This study employed a retrospective descriptive design to evaluate clinical service utilization at the Federal University Teaching Hospital, Wukari (FUTHW), Nigeria, over a three-year period (January 2023–December 2025). The design was selected to enable systematic review of existing hospital records and to identify service utilization trends across multiple service units.

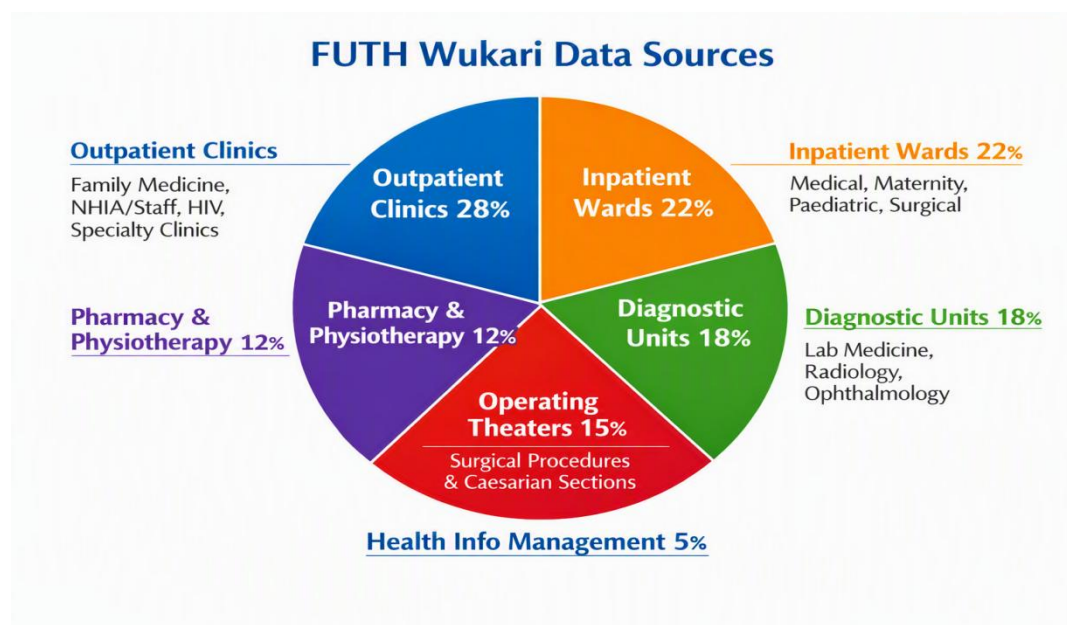
Study Area

The study was conducted at FUTH Wukari, located in Wukari Local Government Area, Taraba State Nigeria. The hospital originated from the General Hospital Wukari, established on April 6, 1962, with facility code 34/14/1/2/1/0001. Approval for its upgrade to a teaching hospital was granted on August 30, 2022, by the late President Muhammadu Buhari. A Memorandum of Understanding (MoU) between the Taraba State Government and the Federal Government was signed on March 30, 2023, to facilitate the transition.

On October 1, 2023, the hospital was officially handed over to the management team of FUTHW. At inception, 250 staff were inherited from the General Hospital, including 4 medical doctors, 5 pharmacists, 1 senior optometrist, 90 nurses, 10 laboratory scientists, and 140 non-clinical staff.

Today, FUTHW functions as a tertiary health referral center, providing comprehensive services in outpatient care, maternal and child health, surgery, diagnostics, pharmacy, physiotherapy, and specialty clinics.

Data Sources



Data Collection and Analysis

Registers were cross-checked with departmental summaries to ensure accuracy and completeness. Data were entered into Microsoft Excel 2025 and analyzed using descriptive statistics. Results were expressed as frequencies, percentages, and growth rates across service units. Tables and figures were generated to illustrate utilization trends.

Ethical Considerations: Ethical approval was obtained from the FUTH Wukari Research and Ethics Committee. Patient identifiers were excluded to maintain confidentiality, and data were used solely for institutional service evaluation.

Results

A total of 272,895 patient contacts and 1,047 major procedures were recorded. Outpatient services dominated, with Family Medicine and specialty clinics accounting for 133,978 contacts (49.1%). NHIA/Staff clinics grew markedly to 12,863 (+211.2%), while HIV clinics rose to 29,406 (+263.3%).

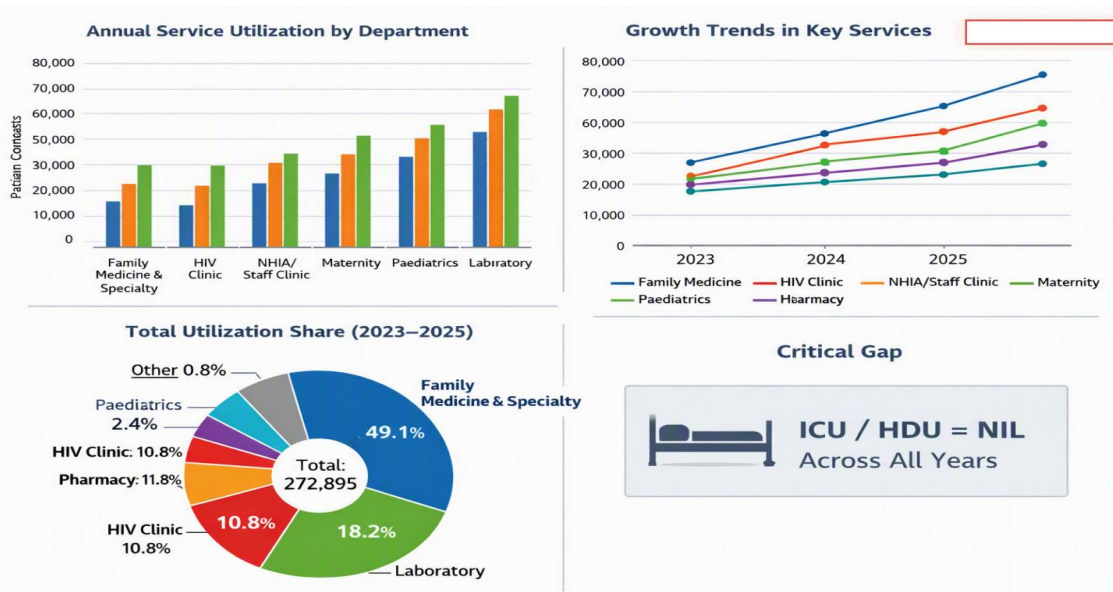
Laboratory Medicine processed 49,753 samples, and Pharmacy dispensed 32,186 contacts. Radiodiagnostics increased steadily to 678 in 2025 (1,363 total). Physiotherapy services expanded from 19 patients in 2023 to 89 in 2025, totaling 144 (+366.7%).

Maternal and child health services showed exponential growth: Maternity admissions rose from 719 to 1,005 (+39.8%), Paediatric admissions from 504 to 776 (+53.9%), and antenatal clinic visits from 1,307 to 1,535 (+17.4%). General surgical admissions increased by 30.4%.

Despite these expansions, ICU and HDU services remained unavailable throughout the review period, representing a critical gap in emergency and complex case management.

Table 1: Annual Service Utilization by Department, 2023–2025

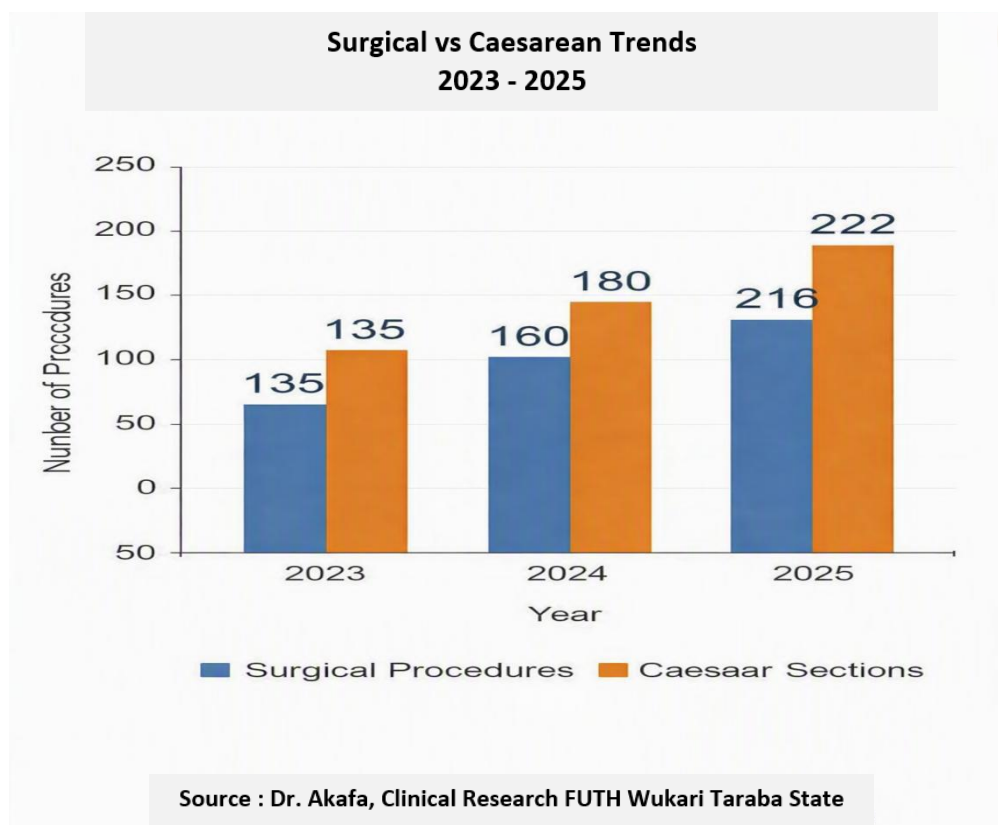
Service Dept./Units	2023	2024	2025	Total
Medical Wards	739	648	866	2,253
Maternity Wards	719	928	1,005	2,652
Paediatric Wards	504	707	776	1,987
Surgical Wards	302	393	678	1,373
Dental Surgery Clinics	230	218	278	726
Radiology	237	297	829	1,363
Ophthalmology Clinic	87	468	431	986
Physiotherapy	19	36	89	144
Family Medicine & Specialty Clinics	34,301	38,469	61,208	133,978
HIV Clinic	3,306	14,086	12,014	29,406
NHIA/Staff Clinics	2,010	4,597	6,256	12,863
Pharmacy	9,129	11,720	11,337	32,186
Ante-Natal Clinic	1,307	1,337	1,535	4,179
Laboratory Samples	12,450	17,890	19,413	49,753
ICU/HDU	Nil	Nil	Nil	Nil
Total Clinical Services	66,648	98,648	107,599	272,895



Source: Dr. TA Akafa, Clinical Records FUTH Wukari Taraba

Table 2: Surgical vs Caesarean Services Performed

Procedure	2023	2024	2025	3-Year Total	% Change (2023-2025)
Surgical Procedures	135	180	222	537	+64.4%
Caesarean Sections	134	160	216	510	+61.2%
Total Procedures	356	340	351	1,047	



Discussion

This three-year retrospective review of clinical service utilization at the Federal University Teaching Hospital, Wukari (FUTHW), highlights both progress and persistent challenges in tertiary healthcare delivery. Outpatient and specialty clinics accounted for nearly half of all patient contacts, underscoring their central role in service provision. The rapid growth in NHIA/Staff clinics reflects the expanding influence of health insurance in improving access to care, while the surge in HIV clinic utilization demonstrates the hospital's increasing role in managing chronic communicable diseases (Okeke et al., 2022; Ojiakor et al., 2025).

Maternal and child health services showed remarkable expansion, with maternity and paediatric admissions rising significantly, alongside steady increases in antenatal clinic visits. These findings emphasize the hospital's critical role in reproductive, maternal, newborn, and child health (RMNCH) programs. Diagnostic services also recorded substantial workloads, with nearly 50,000 laboratory

samples were processed and radiology utilization increasing steadily. Physiotherapy services, though relatively small in volume, demonstrated the highest growth rate, suggesting rising demand for rehabilitative care(WHO., 2020; Prabhune et al., 2025)

Surgical procedures and caesarian sections accounted for over 1,000 operations, highlighting the hospital's importance in operative and obstetric care. However, the absence of intensive care unit (ICU) and high dependency unit (HDU) facilities throughout the review period remains a major limitation, restricting the hospital's ability to manage complex emergencies. This gap mirrors national challenges in critical care infrastructure across Nigerian tertiary hospitals(Nguhiu et al., 2017; Lämmermann et al., 2024)

Overall, the findings demonstrate increasing patient reliance on FUTHW services, reflecting growing confidence in the institution. At the same time, they underscore the need for strategic investment in infrastructure, workforce, and service expansion to sustain growth and improve outcomes.

Conclusion

Clinical service utilization at FUTH Wukari between 2023 and 2025 revealed exponential growth in outpatient, maternal, child health, diagnostic, and insurance-linked services. The hospital has become a vital referral center in Taraba State, meeting diverse healthcare needs. However, critical gaps remain, particularly the absence of ICU/HDU facilities and workforce shortages in key departments. Addressing these challenges is essential to optimize service delivery, strengthen emergency preparedness, and improve patient outcomes.

Recommendations

1. Expand critical care infrastructure: Establish ICU and HDU facilities to enhance emergency and complex case management
2. Strengthen workforce capacity: Recruit and train additional clinical staff, especially in maternal, child health, diagnostic, and rehabilitative services.
3. Revitalize RMNCH programs: Increase investment in reproductive, maternal, newborn, and child health services to sustain growth in maternity, paediatric, and antenatal care.
4. Enhance diagnostic and pharmaceutical services: Expand laboratory and pharmacy infrastructure and improve supply chain management to meet rising demand.
5. Improve forecasting for NHIA/Staff clinics: Anticipate growing demand in insurance-linked services to optimize resource allocation and prevent service strain.
6. Promote rehabilitative care: Strengthen physiotherapy and related services to meet increasing demand for long-term recovery and rehabilitation.

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