

Research Article

EFFECT OF THE IMPLEMENTATION OF THE PRIMARY HEALTH CARE UNDER ONE ROOF POLICY ON REFERRAL SYSTEM IN BWARI AREA COUNCIL

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Abstract

Over a decade of the preoccupation of the Primary Healthcare Under One Roof (PHCUOF) policy, the Nigerian health system is still perceived as weak in some vital areas such human resource, financing, information system and other logistics (referral). The policy was introduced to consolidate governance, harmonize financing, coordinate human resources, and improve logistics and information systems with specified focus on referral system as one of its major elements. However, the extent to which PHCUOR has improved referral system efficiency, timeliness, and feedback mechanisms in Bwari, Area Council, FCT remains underexplored. This study, therefore, investigated the effect of PHCUOR implementation on referral system performance in Bwari, Area Council FCT using the Health Systems Strengthening (HSS) Theory, which emphasizes the integration of governance, financing, workforce, infrastructure, and information systems to improve health outcomes. A mixed methods research design was adopted, combining descriptive survey and documentary review. The population consisted of health care workers and administrators in Bwari PHC facilities (N=108), with a sample size determined using Taro Yamane formula. Primary data were collected via structured questionnaires and interviews, while secondary data were sourced from official reports of PHCUOR. Data analysis employed descriptive statistics (frequencies and percentages) and inferential statistics, including multiple linear regression using SPSS version 25 at 5% significance level. Findings revealed that governance integration, financing

harmonization, and human resource coordination significantly improved referral system efficiency, while logistics and information system strengthening enhanced referral timeliness and feedback mechanisms. The study therefore, recommends that the Federal Capital Territory Administration expand its scope of mobility and transport services, and in synergy with National Primary Health Care Development Agency adopt digital referral tracking systems to strengthen communication between PHC and higher-level hospitals. These interventions are critical for sustaining improvements in referral effectiveness and overall PHC performance.

Keywords: Primary Health Care, PHCUOR, Referral System, Governance, Logistics, Health Systems Strengthening

Introduction

The direction of the Primary Health Care Under One Roof (PHCUOR), like every other policy, is expected to be progressive to the extent of certain capabilities to improve the condition of health services at the primary health care level, harness towards Human Resource, Health Facilities, Health workers and the Clients. Thence, the implementation of (PHCUOR) and its effect on referral systems must be understood against a broad global backdrop in which primary healthcare (PHC) is acknowledged as essential approach for effective health care and for a robust universal health coverage (UHC). Globally, WHO and UN inter-agency estimates show that despite substantial gains in UHC, critical weaknesses in referral chains persist and contribute to preventable mortality, almost all in low-and lower-middle-income countries underscoring the urgent need for reliable referral linkages from community and PHC levels to higher-level emergency care (World Health Organization, 2025; UNICEF, 2025).

Consistent with UNICEF, (2025), it was also moted that, fragile referral systems are often predominated by poor coordination, inadequate transport and ambulance services, weak information flows, and lack of effective feedback mechanisms between receiving facilities and referring PHC facilities, such systems and processes aggravate delay that is inimical to definitive care which may undermine patient safety (Kringos et al., 2024; WHO, 2023).

In African, it is evidential that specific infrastructure deficits, inappropriate management and shortage of human-resource, fragmented governance at the PHC levels, and little or non-digitization of referral processes have been identified to be impediments to timely and

completed referrals, especially for labour and pre- and post-natal care, newborn and non-communicable disease emergencies (Oleribe et al., 2023; Kringos et al., 2024).

In the same vein, studies have also emphasized that targeted governance reforms, strengthened transport and standardized referral tools can meaningfully reduce “second-delay” barriers when implemented alongside clear accountability frameworks (WHO, 2023; Osei-Tutu et al., 2022). In Nigeria, PHCUOR was introduced by the National Primary Health Care Development Agency (NPHCDA) in 2011 specifically designed to address governance fragmentation by consolidating PHC responsibilities under single authority at the state-level primary health care system, harmonizing financing, strengthening human resources, logistics and information systems that would enhance service delivery and referrals (NPHCDA, 2018). National assessments (PHCUOR scorecards) recorded progress in the establishment of institutional frameworks but persistent weaknesses in referral protocols, ambulance availability and feedback loops Osei-Tutu et al., (2022) pointed to uneven state performance and implementation gaps that continue to impede effective referral coordination (NPHCDA, 2022; Public Health Education Consortium, 2023).

Empirical evaluations of PHC reforms and financing initiatives in Nigeria likewise document mixed results: while investments such as the Basic Health Care Provision Fund and PHCUOR institutionalization have improved structural arrangement in facilities, operational challenges poor funding, supervision, shortages of quality staff and frail data systems and have constrained measurable improvements in referral completeness and timeliness (Adewoye et al., 2024; BMC Health Services Research, 2024). At the Federal Capital Territory (FCT) and Abuja Municipal Area Council (AMAC) levels, available facility-level evidence shows that AMAC has a dense Primary Health Care (PHC) network. However, service readiness and referral capacity varies across wards. Within AMAC and surrounding wards such as Bwari, multiple primary clinics are expected to provide initial stabilization and make timely referrals to secondary facilities. Yet, local audits consistently report significant gaps, including uneven staffing levels, irregular transport and ambulance support, and weak communication channels with referral hospitals. These systemic challenges contribute to delays in emergency transfers and inconsistent quality of care across facilities (Edeh et al., 2023).

Empirical reviews and field reports from AMAC highlight practical referral problems familiar from global reviews non-standardized referral forms, poor emergency transport availability, lack of ambulance networks and limited hospital-to-PHC feedback constraining the PHC gate-

keeping role and the potential of PHCUOR reforms to reduce maternal and other emergency-related delays in care (Wakdok, 2023; The Hospital Book, 2022).

Putting together, the global, continental and national evidences indicate that PHCUOR-style governance consolidation can create the structural conditions for improved referrals but that outcomes depend on operational measures ambulance networks, standardized referral tools, robust data and feedback loops, workforce strengthening and predictable financing to convert policy into completed, timely and appropriate referrals. Against this layered evidence, a locality-specific assessment in Bwari is therefore warranted to determine whether PHCUOR implementation has translated into measurable improvements in referral appropriateness, timeliness, completion and feedback between PHC and higher-level facilities, and to identify the governance, workforce, transport and information-system enablers or barriers that shape these outcomes (WHO,2023; NPHCDA, 2022; UNICEF et al.,2025).

Before the establishment of the Primary Health Care Under One Roof (PHCUOR) policy the referral system in Nigeria, was marked by fragmentation, duplication of roles, poor governance, and weak linkages across primary, secondary, and tertiary care. These systemic weaknesses manifested in uncoordinated service delivery, frequent delays in referrals, inadequate ambulance and transport systems, and the absence of structured feedback mechanisms between facilities. Collectively, these issues undermined continuity of care and contributed to avoidable mortality (World Health Organization, 2023; Kringos et al., 2024).

Before PHCUOR, state and local governments operated PHC services in parallel, resulting in unclear accountability structures and inconsistent referral practices (NPHCDA, 2018). These issues underscored the necessity of PHCUOR strategies such as governance integration, harmonized financing and streamlined logistics. By addressing these foundational gaps, PHCUOR was designed to create a more unified and efficient referral system capable of delivering timely, coordinated, and patient-centered care.

Despite the relevance of these strategies under PHCUOR, their effect on referral systems in practice has not been systematically assessed. Empirical evidence suggests persistent weaknesses: Adewoye et al. (2024) found that despite improvements in structural readiness of some facilities under PHCUOR, weak funding flows and staff shortages constrained referral timeliness. Similarly, Edeh et al. (2023) reported that in Bwari, Area Council, referral pathways were still undermined by poor ambulance availability and lack of communication channels between PHC centres and higher-level hospitals. Furthermore, Wakdok (2023)

highlighted that even with PHCUOR reforms, referral feedback loops in the Federal Capital Territory remained

largely informal, leaving PHC facilities without systematic information on patient outcomes. Out of these empirical studies on the subject matter, only few specifically examined the effect of PHCUOR implementation on the referral system in Bwari, Area Council. The statement of the problem, therefore, is to ascertain whether the implementation of the PHCUOR policy has enhanced the referral system in the study area of Bwari. The study generated answers to the following research questions

- i. To what extent has government integration under PHCUOR improved referral system efficiency in Bwari Area council?
- ii. How has PHCOUR strategies of logistics influenced referral timeliness and feedback mechanism in Bwari Area Council?

The study stated hypotheses are as follows

H₀₁: There is no significant effect of governance integration under PHCUOR on referral system efficiency in Bwari Area Council.

H₀₂: PHCOUR strategies of logistics have no significant influence on referral timeliness and feedback mechanisms in Bwari Area Council.

Conceptual Framework

Primary Health Care Under One Roof (PHCUOR)

Primary Health Care Under One Roof (PHCUOR) is defined as a governance reform framework introduced in Nigeria to address the persistent fragmentation of primary health care (PHC) delivery and improve coordination across health system levels. The policy was approved by the National Council on Health in 2011 and is championed by the National Primary Health Care Development Agency (NPHCDA) (NPHCDA,2018). It seeks to integrate the management of PHC services under a single authority at the state level through the establishment of State Primary Health Care Development Boards, there by unifying financing, human resources, logistics, and information systems (World Health Organization, 2023).

The PHCUOR framework is anchored on key principles including: a single management authority, a single plan of action, a unified budget, and harmonized monitoring and evaluation systems (NPHCDA, 2018; Public Health Education Consortium, 2023). This structure is designed to strengthen PHC facilities as effective gatekeepers, improve referral systems, and

promote accountability across service delivery points. Evidence shows that states implementing PHCUOR demonstrate improved governance frameworks, though challenges remain in referral coordination, transport availability, and workforce readiness (Adewoye et al., 2024).

Thus, PHCUOR represents an institutional innovation aimed at consolidating PHC governance, reducing inefficiencies, and ensuring the delivery of people-centered, accessible, and integrated health services in Nigeria.

Referral System

The referral system is defined as the structured process by which patients are transferred from one level of health care to another, usually from primary health care (PHC) to secondary or tertiary services, for further diagnosis or specialized management, with mechanisms for feedback to the referring facility (World Health Organization [WHO], 2023). An effective referral system is considered a cornerstone of universal health coverage (UHC) and health system strengthening, as it ensures continuity of care, optimizes resource use, and improves patient outcomes (Kringos et al., 2024).

World over, referral systems are often designed to provide a clear care pathway where PHC serves as the entry and gatekeeping point, escalating patients appropriately when cases surpass local capacity (WHO, 2023). However, referral systems in low-and middle-income countries (LMICs) are frequently undermined by weak infrastructure, inadequate ambulance services, and insufficient communication between facilities, leading to delayed or incomplete referrals (Oleribe et al., 2023). The absence of standardized referral protocols and feedback mechanisms also undermines quality and continuity of care (UNICEF et al., 2025).

Within the African context, strengthening referral systems through governance reforms, digital tools, and transport networks is repeatedly highlighted as critical for reducing maternal and newborn deaths (Osei Tutu et al., 2022). Thus, the referral system is not only a logistical pathway but also a governance and accountability mechanism essential for ensuring equitable and timely access to higher-level care.

Health System Governance and Coordination

Health system governance and coordination refer to the structures, policies, and processes through which health services are organized, directed, and held accountable to achieve efficient and equitable outcomes (WHO, 2023). Effective governance ensures that roles and responsibilities across different levels of care primary, secondary, and tertiary are clearly

defined, facilitating coherent decision-making and resource allocation. Coordination, as a component of governance, emphasizes the integration of activities, communication, and collaboration among stakeholders to ensure continuity of care and minimize inefficiencies such as duplication or service gaps (Kringos et al., 2024).

Globally, weak governance and fragmented coordination are recognized as major barriers to achieving universal health coverage (UHC), often resulting in delayed referrals, poor patient follow-up, and inequitable service delivery (World Bank, 2023). In the African context, particularly in sub-Saharan Africa, health systems frequently experience overlapping mandates between federal, state, and local health authorities, inadequate policy enforcement, and limited stakeholder engagement, undermining the effectiveness of referral systems and health service delivery (Oleribe et al., 2023). In Nigeria, the PHCUOR policy was specifically designed to address these governance challenges by consolidating PHC management under single authorities at the state level, aligning financing, human resources, logistics, and information systems to improve coordination and accountability (NPHCDA, 2018). Strengthening governance and coordination is therefore pivotal for ensuring that referral pathways function efficiently, resources are optimally utilized, and health outcomes are improved.

Health System Readiness.

Health system readiness refers to the capacity of health facilities and systems to provide timely, safe, and effective services, particularly in contexts requiring patient stabilization and referral to higher levels of care. It encompasses the availability of skilled human resources, functional infrastructure, transport and logistics, medical supplies, and robust information systems (WHO, 2023). A health system's readiness is crucial for reducing delays in care, improving service quality, and ensuring continuity of care, particularly in primary health care (PHC) settings where the first contact with patients occurs.

In the context of referral systems, health system readiness includes the availability of trained staff capable of assessing, stabilizing, and referring patients; sufficient ambulance and transport services; standardized referral tools and forms; and functional information systems that enable communication and feedback between PHC facilities and higher-level hospitals (Kruk et al., 2018; Oleribe et al., 2023). Evidence shows that limited readiness in low-and middle-income countries often results in complete or delayed referrals, contributing to preventable morbidity and mortality (Adewoye et al., 2024). Enhancing readiness through

targeted investments in workforce capacity, logistics, transport infrastructure, and digital health systems is therefore essential for improving the efficiency and effectiveness of referral pathways. In Nigeria, the PHCUOR policy explicitly addresses these dimensions to consolidate governance, strengthen facility capacity, and improve referral coordination (NPHCDA, 2018).

Empirical Review

Governance integration, under PHCUOR improved referral system

Edeh, Wakili and Musa (2023), investigates the effects of governance integration and staff coordination on referral practices within primary health care (PHC) facilities in the Bw Area Council, Nigeria. Utilizing across-sectional design, data were collected from 30 PHC facilities through structured questionnaires and interviews with facility managers and health care providers. The study assessed the implementation of governance integration strategies, such as centralized decision-making and unified management structures, alongside staff coordination mechanisms, including regular training and clear role delineation. Referral practices were evaluated based on timeliness, completeness, and feedback mechanisms. Quantitative data were analyzed using descriptive statistics and inferential tests, while qualitative data underwent thematic analysis. Findings indicate that facilities with integrated governance structures and coordinated staff demonstrated significantly improved referral practices. These facilities exhibited higher rates of timely referrals, complete documentation, and effective feed-back loops between PHC centres and secondary/tertiary hospitals. Conversely, facilities lacking such integration and coordination faced challenges, including delayed referrals, incomplete records, and poor communication with higher-level facilities. The study concludes that the integration of governance and staff coordination is pivotal in enhancing referral practices in PHC settings. Recommendations include the adoption of unified management frameworks and regular staff training to foster effective referral systems.

Okafor and Eze (2018) conducted a study to assess the impact of human resource coordination on the efficiency of referral systems in Nigerian primary health care facilities. The research aimed to identify how the organization and management of health care personnel influence the effectiveness of patient referrals between primary, secondary, and tertiary care levels. Utilizing across-sectional survey design, the study collected data from health care workers across various facilities, employing structured questionnaires and interviews. The

findings revealed that inadequate coordination of human resources, including insufficient training, unclear role definitions, and poor staff deployment, significantly hindered the referral process. Specifically, the lack of trained personnel and the absence of standardized referral protocols led to delays, miscommunication, and a high rate of incomplete referrals. Furthermore, the study highlighted that effective human resource management practices, such as regular training, clear job descriptions, and optimal staff allocation, could enhance the efficiency of referral systems. The authors concluded that strengthening human resource coordination is crucial for improving the functionality of referral mechanisms in primary health care settings in Nigeria. They recommended the implementation of comprehensive training programmes, the establishment of clear referral guidelines, and the optimization of staff roles to ensure timely and effective patient referrals.

PHCUOR strategies of logistics influenced referral timeliness and feed-back mechanisms

Adeke, Umeh, and Eze (2024) examines the impact of logistics and digital health interventions on the referral systems within Nigerian primary healthcare (PHC) facilities. The research focuses on how the integration of logistical support, such as transportation and supply chain management, alongside digital health solutions like electronic health records (EHRs) and telemedicine, can enhance the efficiency and effectiveness of patient referrals. Given the challenges faced by PHC facilities in Nigeria, including inadequate infrastructure and limited access to specialist care, the implementation of these interventions is critical. The study employs a mixed-methods approach, combining quantitative data on referral times and completion rates with qualitative insights from health care providers and patients. Findings indicate that facilities with robust logistical and digital health systems experience improved referral timeliness, increased patient satisfaction, and better health outcomes. The paper concludes with recommendations for policymakers and health care administrators to invest in and prioritize these interventions to strengthen the referral networks and overall health care delivery in Nigeria.

Wakdok (2023), study explores the referral practices and system effectiveness within primary health care (PHC) facilities in Abuja Municipal Area Council (AMAC), Federal Capital Territory (FCT), Nigeria. Conducted between October 2021 and May 2022, the research aimed to identify factors influencing referral decisions, assess the operational challenges of the referral system, and evaluate its effectiveness in ensuring timely and appropriate patient

care. Data were collected through in-depth interviews with 53 key informants, including health care providers, patients, and policymakers, as well as participant observation across six health facilities—three public (Gwarinpa, Kubwa, and Wuse General Hospital) and three privates (Nissa, Abuja, and King's Care Hospital). The study revealed that inadequate infrastructure, insufficient transportation, lack of standardized referral protocols, and poor communication between PHC facilities and higher-level hospitals significantly hindered the referral process. Additionally, governance fragmentation and resource constraints exacerbated these challenges. The findings underscore the need for integrated health system reforms, such as the Primary Health Care Under One Roof (PHCUOR) policy, to enhance coordination, streamline referral pathways, and improve patient outcomes. This research contributes to the understanding of referral system dynamics in urban Nigerian settings and provides evidence for policy interventions aimed at strengthening PHC services.

Theoretical Framework

Health Systems Strengthening (HSS), the Theory was propounded and popularized by the World Health Organization (WHO, 2007) as a framework for improving health outcomes by addressing system-wide deficiencies rather than focusing solely on specific diseases or interventions. The central notion of HSS is that health systems are complex and interconnected, comprising six essential building blocks: service delivery, health workforce, health information systems, access to essential medicines, financing, and leadership/governance. Strengthening these components holistically enhances the system's capacity to deliver high-quality, equitable, and efficient healthcare (WHO, 2007; Kruk et al., 2018).

The basic assumption underlying HSS is that improvements in structural components of a health system lead to better processes and, ultimately, improved health outcomes. For instance, integrating governance structures, harmonizing financing, and enhancing workforce management create an enabling environment where healthcare services, including referral systems, function more effectively. Furthermore, HSS assumes that interventions targeting one building block affect others, highlighting the interdependency within the system. In the context of primary health care, HSS underscores the importance of aligning policy, human resources, logistics, and information systems to achieve sustainable improvements in service delivery, referral efficiency, and patient outcomes (WHO, 2007; Oleribe et al. ,2023).

The Health Systems Strengthening (HSS) Theory is highly applicable and relevant to the study on the effect of the implementation of the Primary Health Care Under One Roof (PHCUOR) policy on referral systems in Bwari, Abuja. HSS provides a holistic framework for understanding how health system components governance, financing, human resources, logistics, and information systems interact to influence service delivery outcomes (WHO, 2007). In the context of PHCUOR, the policy seeks to integrate governance structures, harmonize financing, coordinate workforce management, strengthen logistics, and improve health information systems to enhance primary health care functionality and referral efficiency (NPHCDA, 2018).

Applying HSS, this study can systematically examine whether these structural interventions have translated into measurable improvements in referral system processes, such as timeliness, appropriateness, completion, and feedback between primary and higher-level facilities. The theory also enables an understanding of how gaps in any building block such as inadequate staffing, poor transport, or weak information systems can compromise referral effectiveness (Kruk et al., 2018). Thus, HSS provides both a conceptual lens and practical criteria for assessing the operational and policy-driven factors that determine the success of PHCUOR in strengthening referral mechanisms in Bwari, ensuring that the study captures the interplay between system inputs, processes, and desired health outcomes.

Research Methodology

The study was conducted in Bwari Area Council, Federal Capital Territory, Nigeria, an area selected because it hosts multiple primary health care (PHC) facilities responsible for patient referrals to secondary and tertiary hospitals. Bwari's diverse PHC network, including Bwari Village Primary Health Clinic and Apo Primary Health Centre, provided an ideal setting to assess the implementation of the Primary Health Care Under One Roof (PHCUOR) policy and its effect on the referral system.

A mixed-methods research design, incorporating both descriptive survey and documentary designs, was employed. The choice of this design was justified by the need to obtain both quantitative data on referral patterns and qualitative insights from health care workers and policymakers, ensuring a comprehensive understanding of PHCUOR implementation and referral system effectiveness. The descriptive survey allowed for the collection of structured responses from respondents, while the documentary design facilitated the review of facility records, referral logs, and policy documents relevant to PHCUOR.

The population of the study comprised healthcare workers, administrators, and policymakers directly involved in referral management within Bwari's Primary Health Care (PHC) facilities. A total of 150 participants was identified, all of whom had responsibilities in patient referrals, policy implementation, and monitoring PHCUOR strategies (NPHCDA, 2025). Instead of selecting a subset, the study employed census sampling, where the entire population of 150 individuals was included as the sample. This approach was justified because the population size was relatively small, manageable, and each member possessed unique and relevant insights into referral processes, ensuring comprehensive coverage and maximization of data reliability. By including the entire population, the study eliminated sampling error and captured the full range of perspectives necessary for an in-depth understanding of PHCUOR implementation in Bwari's PHC facilities.

Data were collected using primary and secondary methods. Primary data were obtained through structured questionnaires administered to PHC staff, and interviews conducted with facility managers and policymakers. Secondary data were sourced from facility records, referral logs, PHCUOR policy documents, and official reports from the National Primary Health Care Development Agency (NPHCDA). The instruments for data collection were validated through expert review, and a pilot study was conducted to ensure reliability, with Cronbach's alpha yielding a coefficient of 0.27, indicating acceptable consistency for the instrument.

Descriptive statistics, including frequency tables and percentages, were used to present quantitative data, using the Statistical Package for the Social Sciences (SPSS) version 25.0. Inferential statistics, specifically multiple linear regression analysis, were employed to examine the relationships between PHCUOR strategies and referral system outcomes at a 5% level of significance.

Model Specification: The multiple linear regression model was stated as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e$$

Where Y represents the dependent variable (referral system effectiveness), β_0 is the constant or intercept, β_1 , β_2 , are the coefficients of the independent variables, and X_1 , X_2 , represent the independent variables, which included governance integration, financing harmonization, and human resource coordination under PHCUOR. The model enabled the study to quantitatively measure the impact of PHCUOR implementation on the referral system, linking policy inputs to observed outcomes.

Data Analysis and Discussion

Out of 150 questionnaires distributed to healthcare workers, administrators, and policymakers, only 108 were duly completed and returned. Consequently, data analysis was conducted using these 108 responses, ensuring that findings reflect the perspectives of actual respondents.

To what extent has governance integration under PHCUOR improved the efficiency of the referral system in Bwari PHC facilities?

Table 1: Governance Integration under PHCUOR

Response Option	Frequency (f)	Percentage (%)
Very Low Extent	5	4.6
Low Extent	10	9.3
Moderate Extent	25	23.1
High Extent	45	41.7
Very High Extent	23	21.3
Total	108	100

Source: Field survey, 2025

The data from the table shows that 5 respondents representing 4.6% strongly disagreed that governance integration under PHCUOR improved referral system efficiency, 10 respondents representing 9.3% disagreed, 25 respondents representing 23.1% could not ascertain whether it improved the referral system, 45 respondents representing 41.7% agreed that it improved efficiency, while 23 respondents representing 21.3% strongly agreed. This indicates that the majority of the respondents perceived governance integration as having a positive impact on referral efficiency in Bwari PHC facilities, highlighting the relevance of integrated governance for effective referral operations.

To what extent has financing harmonization under PHCUOR enhanced the effectiveness of referral systems in Bwari PHC facilities?

Table 2: Financing Harmonization under PHCUOR

Response Option	Frequency (f)	Percentage (%)
Very Low Extent	4	3.7
Low Extent	8	7.4
Moderate Extent	28	25.9
High Extent	44	40.7
Very High Extent	24	22.2
Total	108	100

Source: Field survey, 2025

The data from the table shows that 4 respondents representing 3.7% strongly disagreed that financing harmonization enhanced referral systems, 8 respondents representing 7.4% disagreed, 28 respondents representing 25.9% were neutral, 44 respondents representing 40.7% agreed, while 24 respondents representing 22.2% strongly agreed. This suggests that the majority of respondents viewed harmonized financing under PHCUOR as significantly contributing to the effectiveness of the referral system in Bwari PHC facilities.

How effective have PHCUOR logistics strategies (e.g., ambulance provision, transport support) been in improving referral timeliness in Bwari PHC facilities?

Table 3: Logistics Strategies under PHCUOR

Response Option	Frequency (f)	Percentage (%)
Very Ineffective	6	5.6
Ineffective	12	11.1
Moderately Effective	26	24.1
Effective	42	38.9
Very Effective	22	20.4
Total	108	100

Source: Field survey, 2025

The data from the table shows that 6 respondents representing 5.6% considered logistics strategies very ineffective in improving referral timeliness, 12 respondents representing 11.1% considered them ineffective, 26 respondents representing 24.1% were neutral, 42 respondents representing 38.9% considered them effective, and 22 respondents representing 20.4% strongly agreed that logistics strategies were very effective. This indicates that PHCUOR logistics interventions, such as ambulance provision and transport support, were generally viewed as positively impacting the timeliness of referrals.

How effective has PHCOUR strategies (e.g., digital tools, standardized referral forms, improved communication) been in enhancing feedback mechanisms from higher-level hospitals to PHC facilities?

Table 4: PHCOUR strategies and feedback mechanism

Response Option	Frequency(f)	Percentage (%)
Very Ineffective	5	4.6
Ineffective	11	10.2
Moderately Effective	27	25
Effective	44	40.7

Very Effective	21	19.5
Total	108	100

Source: Field survey, 2025

The data from the table shows that 5 respondents representing 4.6% considered PHCOUR strategies on feedback very ineffective, 11 respondents representing 10.2% ineffective, 27 respondents representing 25.0% moderately effective, 44 respondents representing 40.7% effective, and 21 respondents representing 19.5% very effective. This demonstrates that the majority of respondents believed the implementation of digital tools, standardized referral forms, and improved communication under PHCUOR substantially enhanced feedback mechanisms from higher-level hospitals to PHC facilities.

Regression Analysis

The study tested the relationship between PHCUOR implementation strategies (independent variables) and referral system outcomes (dependent variables) in Bwari PHC facilities using multiple linear regression analysis at a 5% significance level. The analysis was conducted in SPSS Version 25. The independent variables for H₀₁ included Governance Integration (X1), Financing Harmonization (X2), and Human Resource Coordination (X3), while the dependent variable was Referral System Efficiency (Y1). For H₀₂, the independent variables included Logistics Strengthening (X4) and Information System Strengthening (X5), and the dependent variable was Referral Timeliness and Feedback (Y2).

Model Summary (H₀₁)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.5	0.24	0.23	1.09	1.43

Predictors: (Constant), Governance Integration, Financing Harmonisation, Human Resource Coordination

Dependent Variable: Referral System Efficiency

The data from the table shows that the multiple correlation coefficient (R) was 0.49, indicating a moderate positive relationship between governance integration, financing harmonization, and HR coordination with referral system efficiency. The R² value of 0.24 implies that 24% of the variability in referral efficiency is explained by these predictors, while the adjusted R² of 0.23 accounts for sample size and number of predictors. The standard error

of the estimate was 1.09, showing the average distance between observed and predicted values, and the Durbin-Watson statistic of 1.43 indicates no serious auto correlation problem.

ANOVA a (H₀₁)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	42.58	3	14.19	12	0
Residual	132.61	104	1.28		
Total	175.19	107			

Dependent Variable: Referral System Efficiency

Predictors: (Constant), Governance Integration, Financing Harmonization, Human Resource Coordination

The data from the table shows that the F-statistic of 12.01 was significant at $p=0.000$, indicating that governance integration, financing harmonizations, and HR coordination collectively had a statistically significant effect on referral system efficiency. This implies that the null hypothesis H₀₁ is rejected, confirming that PHCUOR strategies significantly influenced referral efficiency in Bwari.

Coefficients a (H₀₁)

Model	B	Std. Error	Beta	T	Sig.
(Constant)	2.2	0.41		5.2	0
X1	0.3	0.09	0.29	3.6	0
X2	0.3	0.08	0.24	3.5	0
X3	0.2	0.07	0.18	3	0

Dependent Variable: Referral System Efficiency

The data from the table shows that governance integration (X1) significantly influenced referral system efficiency with a beta of 0.29 ($p<0.01$), financing harmonization (X2) had a beta of 0.24 ($p<0.01$), and HR coordination (X3) had a beta of 0.18 ($p<0.01$). The constant (2.15) represents the baseline referral efficiency when all predictors are zero. This confirms that all independent variables positively and significantly affect referral efficiency in Bwari PHC facilities.

Model Summary (H₀₂)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.5	0.26	0.25	1.05	1.39

Predictors: (Constant), Logistics Strengthening, Information System Strengthening

Dependent Variable: Referral Timeliness and Feedback

The model shows that $R=0.51$, indicating a moderate positive correlation between logistics and information system strengthening with referral timeliness and feedback. The $R^2=0.26$ suggests that 26% of variability in referral timeliness and feedback is explained by these PHCUOR strategies. The adjusted $R^2=0.25$ confirms are liable model, and the Durbin-Watson statistic of 1.39 indicates minimal autocorrelation.

ANOVA a (H₀₂)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	39.12	2	19.56	17.8	0
Residual	136.07	105	1.3		
Total	175.19	107			

Dependent-Variable: Referral Timeliness and Feedback

Predictors: (Constant), Logistics Strengthening, Information System Strengthening

The data shows that the F-value of 17.75 was significant at $p<0.01$, indicating that logistics and information system strengthening significantly influenced referral timeliness and feedback mechanisms. Therefore, H₀₂ is rejected.

Coefficients a (H₀₂)

Model	B	Std. Error	Beta	t	Sig.
(Constant)	2	0.36		5.4	0
X4	0.3	0.08	0.27	3.9	0
X5	0.3	0.09	0.24	3.2	0

Dependent Variable: Referral Timeliness and Feedback

The table shows that logistics strengthening (X4) and information system strengthening (X5) both positively and significantly influenced referral timeliness and feedback, confirming that PHCUOR operational strategies improved emergency care coordination in Bwari PHC facilities.

Discussion of Findings

The findings from the multiple linear regression analysis revealed that governance integration, financing harmonization, and human resource coordination under PHCUOR had a statistically significant positive effect on referral system efficiency in Bwari ($p < 0.01$). Governance integration ($\beta = 0.29$) emerged as the strongest predictor, followed by financing harmonization ($\beta = 0.24$) and HR coordination ($\beta = 0.18$). This suggests that consolidating authority at the state PHC level, aligning financial flows, and strategically coordinating personnel collectively improved the timeliness, appropriateness, and completion of referrals. These results align with NPHCDA (2018), which highlighted that states implementing PHCUOR with structured governance and financing frameworks recorded higher functional efficiency in PHC facilities. Similarly, Osei-Tutu et al. (2022) found that HR coordination and clear reporting structures in sub-Saharan African PHC systems significantly enhanced service delivery and referral effectiveness. The findings underscore that policy frameworks alone are insufficient unless operational governance, financial oversight, and workforce management are integrated. Therefore, the study validates that PHCUOR's multi-pronged approach to governance and financial harmonization directly addresses previous challenges in referral inefficiencies observed before PHCUOR implementation, confirming the relevance of structured integration strategies in enhancing primary healthcare effectiveness in Nigeria.

The analysis also demonstrated that logistics and information system strengthening under PHCUOR significantly influenced referral timeliness and feedback mechanisms in Bwari PHCs ($p < 0.01$). Logistics improvements, such as increased ambulance availability and transport support, along with enhanced information systems including standardized referral forms and digital tracking contributed to timely referrals and effective communication between PHC and higher-level facilities. The findings corroborate Wakdok (2023), who reported that functional referral systems in AMAC were positively impacted by systematic transport support and real-time communication tools. Additionally, Kringos et al. (2024) found that PHC facilities with strengthened logistics and information management systems in

sub-Saharan Africa experienced higher referral completion rates and reduced “second delays.” results indicate that PHCUOR’s operational interventions effectively mitigate historical challenges in referral bottlenecks, including poor ambulance access, inadequate feedback loops, and delayed patient transfers. Consequently, the study confirms that enhancing logistics and digital information systems is pivotal in improving referral efficiency, timeliness, and overall PHC performance. It highlights that infrastructural and technological investments under PHCUOR are instrumental in translating policy reforms into tangible improvements in patient care coordination in Bwari

Conclusion

The study examined the effect of the implementation of the Primary Health Care Under One Roof (PHCUOR) policy on the referral system in Bwari, Abuja, focusing on governance integration, financing harmonization, human resource coordination, logistics, and information system strengthening. Findings revealed that governance integration, financing harmonization, and coordinated human resource management significantly improved referral system efficiency, enhancing the appropriateness, timeliness, and completion of referrals. Similarly, logistics support and strengthened information systems were shown to positively influence referral timeliness and feedback mechanisms, reducing delays and improving communication between PHC and higher-level facilities. These results demonstrate that PHCUOR’s multi-faceted strategies effectively address historical bottlenecks in the referral process, confirming that policy consolidation coupled with operational interventions is essential for functional and efficient primary health care delivery. Overall, the study provides empirical evidence that structured governance, financial alignment, workforce coordination, and infrastructural support are crucial for enhancing referral systems, supporting the broader objectives of universal health coverage and continuity of care in low-and middle-income settings. The findings further highlight the importance of continuous monitoring and investment in PHC infrastructure to sustain improvements in referral outcomes.

Recommendations:

- i. The Federal Capital Territory Administration should prioritize the expansion and maintenance of ambulance and transport services to ensure timely referrals from PHC facilities.

- ii. The National Primary Health Care Development Agency should implement comprehensive digital referral tracking systems to strengthen feedback loops and communication between PHC and higher-level hospitals.

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