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Assessment of the compliance with minimum quality standards by public primary healthcare facilities in Nigeria

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Abstract

Achieving universal health coverage (UHC) and the Sustainable Development Goals (SDG) by 2030 relies on the delivery of quality healthcare services through effective primary healthcare (PHC) systems. This necessitates robust infrastructure, adequately skilled health workers and the availability of essential medicines and commodities. Despite the critical role of minimum standards in benchmarking PHC quality, no global consensus on these standards exists. Nigeria has established minimum standards to enhance healthcare accessibility and quality, including the Revised Ward Health System Strategy (RWHSS) by the National Primary Health Care Development Agency (NPHCDA). This paper outlines the evolution of PHC minimum standards in Nigeria, evaluates compliance with RWHSS standards across all public PHC facilities, and examines the implications for ongoing PHC revitalization efforts. The study used a cross-sectional descriptive design to assess compliance across 25 736 public PHC facilities in Nigeria. Data collection involved a national survey using a standardized assessment tool focussing on infrastructure, staffing, essential medicines and service delivery. Compliance with RWHSS minimum standards was found to be below 50% across all facilities, with median compliance scores of 40.7%. Outreach posts had a median compliance of 32.6%, level 1 facilities 31.5% and level 2+ facilities 50.9%. Key findings revealed major gaps in health infrastructure, human resources and availability of essential medicines and equipment. Compliance varied regionally, with the North-west showing the highest number of facilities but varied performance across standards. The lessons learned underscore the urgent need for targeted interventions and resource allocation to address the identified deficiencies. This study highlights the critical need for regular, comprehensive compliance assessments to guide policy-makers in identifying gaps and strengthening PHC systems in Nigeria. Recommendations include enhancing monitoring mechanisms, improving resource distribution and focussing on infrastructure and human resource development to meet UHC and SDG targets. Addressing these gaps is essential for advancing Nigeria's healthcare system and ensuring equitable, quality care for all.

Keywords Assessment, Health systems, Policy, Primary healthcare, Sustainable Development Goals, Universal health coverage

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Introduction

Quality healthcare services are central to attaining universal health coverage (UHC) by 2030, underpinned in Sustainable Development Goal (SDG) 3.8 [1]. UHC ensures all individuals can access high-quality essential healthcare services without financial hardship [2]. Achieving UHC and the health-related SDGs is feasible through strong primary healthcare (PHC) systems to improve health outcomes and reduce health disparities [3–6]. PHC has been widely acknowledged as the backbone and the people's gateway to a strong and effective health system [6]. It is an approach to health that equitably maximizes the level and distribution of healthcare and the well-being of individuals and communities by providing comprehensive and accessible services, from health promotion and disease prevention to treatment, rehabilitation and palliative care [6]. The 2018 Astana Declaration and the World Health Assembly in 2019 reaffirmed the critical role of and global commitment to sustainable PHC and called for increased investment in and strengthening of PHC systems to attain UHC [7, 8]. Robust PHC systems that deliver quality services can reduce catastrophic health expenditure, provide equitable access to services and produce optimal population health outcomes [1, 9, 10]. This is important, especially for low- and middle-income countries (LMICs) with limited access to high-quality essential health services [5, 11]. Therefore, while the aim is to achieve UHC, the global community has emphasized expanding the quality of healthcare services provided at PHC facilities as a means to this end [1, 5, 12].

Standards or policy documents that define best practices are often used to benchmark the quality of PHC services [13]. They provide a framework for defining, assessing, monitoring and improving the quality of care provided. Although the principles of PHC have been itemized as accessibility, community participation, equity and social justice, health promotion, contextually appropriate skills and technology and intersectoral collaboration, there is no global position on the minimum standards for PHC [14, 15]. This may relate to the spirit of the 1978 Alma Ata Declaration, which recommended that PHC be adapted to the cost and context affordable to each country as they evolve in socio-economic development [16]. Thus, the ideal PHC standards should be people-centred and sensitive to local health needs and political, social and economic contexts.

Many countries across Africa have developed minimum standards for PHC to improve the accessibility and quality of healthcare services [17]. For example, the Department of Health in South Africa and the Ministry of Health in Kenya developed guidelines for establishing and operating PHC facilities, including standards for staffing, equipment and services provided [18, 19]. Both countries have also evolved systems of monitoring and evaluating compliance with these minimum standards. South Africa has a system of accreditation for PHC facilities, which assesses compliance with established standards [20].

The Nigerian National Health Act (NNHA) of 2014 includes provisions for establishing standards and accreditation of health facilities (HFs) in Nigeria [21]. The act also provides for classifying HFs into different categories with different standards and requirements. Additionally, the act requires that all HFs be registered with the relevant state or local government authority upon meeting specific minimum standards for registration. Furthermore, the Act requires that all HFs be inspected regularly to meet the required standards [21].

This article describes (1) how the minimum standards for PHC in Nigeria evolved, (2) the outcomes and lessons learned from a nationwide performance evaluation of compliance with the minimum standards across all public PHC facilities in Nigeria and (3) its implications for ongoing PHC revitalization efforts in Nigeria and beyond.

This research holds major importance as it examines the fundamental components of healthcare systems in Nigeria, with a particular emphasis on PHC facilities that are essential for the realization of UHC and the health-related SDGs by the year 2030. In Nigeria, where challenges related to healthcare access and quality persist, it is vital to ensure that PHC services adhere to minimum standards to enhance population health outcomes, mitigate health disparities and improve the overall effectiveness of the health system. The study's focus on assessing compliance with these standards across a wide array of public PHC facilities is critical for pinpointing deficiencies in service delivery that, if left unaddressed, could impede the country's advancement towards UHC.

Moreover, the study's exploration of the evolution of these minimum standards and the outcomes of their nationwide evaluation provides valuable insights for policy-makers and stakeholders. It highlights the practical challenges and successes in implementing and maintaining these standards, offering lessons that can guide future health reforms and investments. Given that more than 50% of PHC facilities in Nigeria fail to meet the prescribed standards, this study provides a compelling argument for targeted interventions and resource allocation to strengthen the weak PHC systems.

The significance of this study lies in its potential to influence policy decisions and health system reforms at both national and sub-national levels in Nigeria. By documenting the evolution and current state of compliance with PHC standards, the study serves as a critical

reference for ongoing efforts to revitalize the Nigerian health system.

Overview of the Nigerian health system and health policy-making

Nigeria operates a three-tiered federal system of governance: federal, state and local governments. There are 36 states plus the Federal Capital Territory (FCT) and 774 local government areas (LGAs), with each LGA having a minimum of 10 and a maximum of 20 political wards. The states are clustered into six geo-political zones: North-east, North-Central, North-west, South-east, South-South, and South-west. Nigeria's healthcare delivery system is organized along its decentralized political governance system. Through the Federal Ministry of Health, the federal government leads the development and implementation of public health programs at the national level. It provides health services through tertiary and teaching hospitals. Further, the state health ministries and local government councils manage the implementation of these programs at their levels and provide services through secondary hospitals and PHC centres, respectively [22]. Thus, the three tiers ideally operate as autonomous resource allocation and utilization units. Despite this decentralization, the NNHA of 2014 establishes mechanisms for coordinating the health system and setting national policy thrust and standards for healthcare delivery nationwide [21, 23]. One of these mechanisms is the National Council on Health (NCH).

Nigeria's NCH is the highest policy-making for health and approves all health-related policies. Members of the NCH include all 36 state ministries of health represented by their commissioners and chaired by the Honourable Minister for Health [24]. The anticipation is that policies made by the NCH, though not binding [25], would translate into optimal subnational implementation, given that the state ministries of health are part of the policy processes. On the contrary, political dynamics frequently lead to the non-implementation, sub-quality implementation or even a redesign of policies at the subnational levels of governance [26–28]. This is particularly common with PHC standards and guidelines, considering that the state primary healthcare agencies and local government health authorities under them ideally operate autonomously of the National Primary Health Care Development Agency (NPHCDA), in line with their local health needs and political, social and economic contexts. For example, the Revised Ward Health System Strategy (RWHSS) developed by the NPHCDA, which prescribes the minimum standards for each facility type [29], is yet to be adopted nationwide.

The evolution of minimum standards for PHC in Nigeria

In 1988, Nigeria launched its first comprehensive national health policy on PHC, a decade after the 1978 Alma Ata Declaration. The policy emphasized preventive medicine and community-focussed healthcare services [30, 31]. By 1990, PHC was expanded to all LGAs, and its implementation was devolved to the LGAs. To maintain coordination during Nigeria's transition from an autocratic government to a democracy, the NPHCDA was established in 1992 [30].

The NPHCDA used the WHO's African Region Minimum District Health Package to develop its Minimum Health Care Package in 1995 [32]. However, poor implementation led to the NPHCDA initiating PHC revitalization reforms in 2000 [30, 31]. These reforms included the establishment of the Ward Health System Strategy, which aimed to align PHC operations with the political system by organizing the governance structure around the political ward. The Ward Minimum Health Package was developed in 2007 to prescribe the minimum health services available to communities within each political ward [33].

To address operational deficiencies and political and health governance fragmentation at the Ward and LGA levels, the NPHCDA introduced the PHC Under One Roof policy in 2011. The policy aimed to unify coordination across sectors within a decentralized health system to achieve the goals of PHC and UHC [30]. In 2012, the Minimum Standards for PHC in Nigeria and the National Guidelines for Development of PHC System in Nigeria were also developed to define and coordinate the quality of PHC operations and services [33]. To address the persistent health challenges and the need to strengthen the PHC system to deliver quality healthcare services, the national health policy was revised in 2016 to provide a framework for achieving UHC and health-related SDGs [34].

Following the 2018 Astana Declaration, the NPHCDA renewed its thrust for an integrated service delivery model to deliver quality and equitable services reflective of current local and global drive by developing a comprehensive RWHSS in 2021 [29]. The RWHSS outlines the essential package of health services for each PHC level (from the home/community level to the PHC Centre), the human resource distribution at the different levels and governance structures and resource requirements. Figure 1 shows the prescribed structure for the RWHSS. One of the significant revisions was the reclassification of PHC facilities, as indicated in Table 1. The strategy seeks to ensure that each political ward has at least a level 2 PHC facility providing services to a population ranging between 10 000 and 30 000 people.

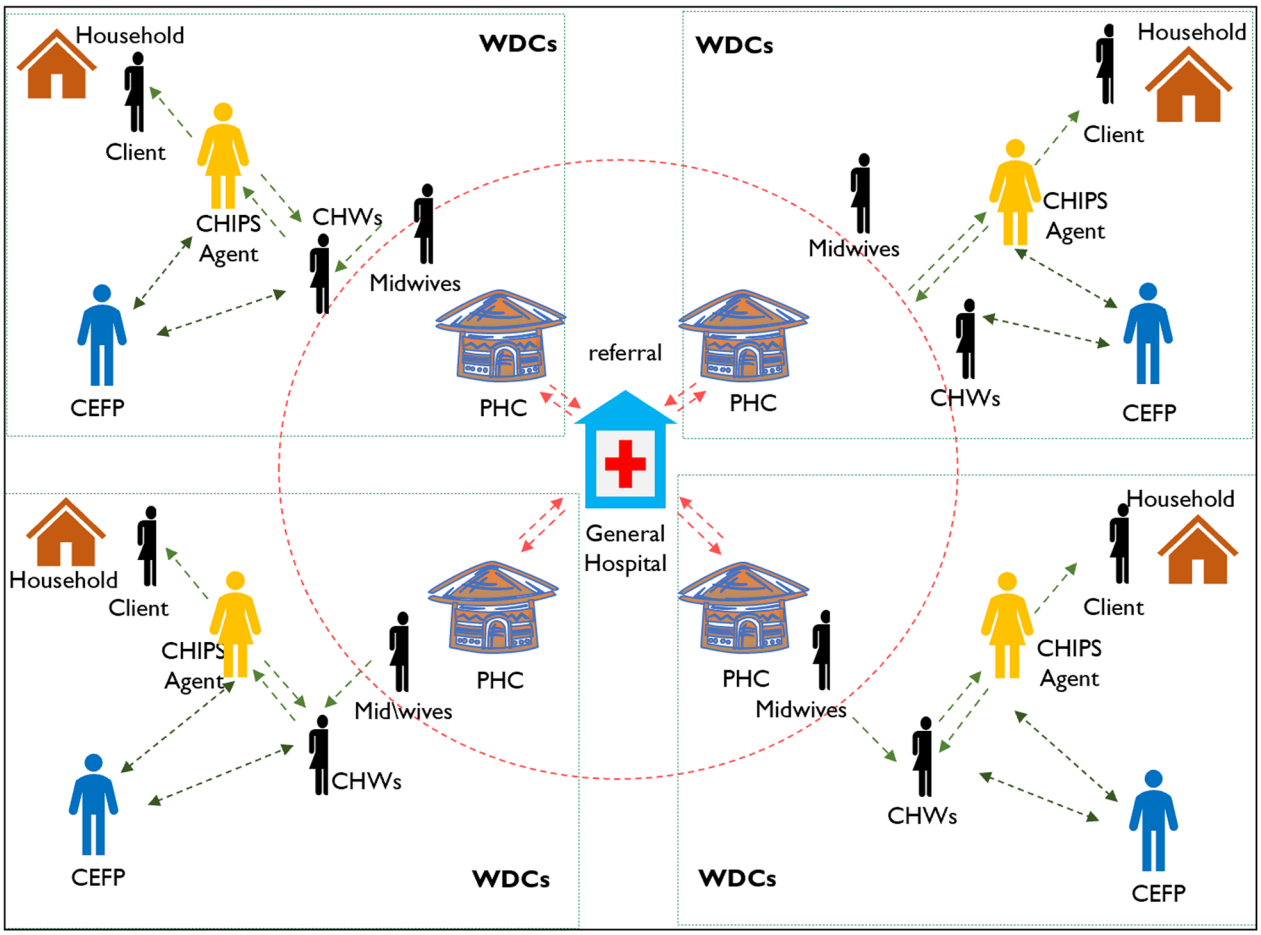

Fig. 1 The RWHSS describes the relationships and referral processes between the community governance structure known as the Ward Development Committees (WDCs), the community-based agents [community engagement focal persons (CEFPs) and community health influencers, promoters and services (CHIPS)] and the formal health system service providers [such as the community health workers (CHWs), nurses and midwives], and services at PHC facilities [29]

Methodology

Study design

This study employs a cross-sectional descriptive design to evaluate the compliance of public primary healthcare (PHC) facilities in Nigeria with the Revised Ward Health System Strategy (RWHSS) minimum standards. The evaluation was conducted across all 25 736 public PHC facilities in Nigeria, spanning the six geopolitical zones: North-east, North-Central, North-west, South-east, South-South, and South-west. The study aimed to assess adherence to these standards, identify gaps in service delivery and provide insights to enhance the quality of PHC services nationwide.

Sampling techniques

A multi-stage stratified sampling technique was utilized to ensure representation across Nigeria's diverse geopolitical zones. In the first stage, the country was stratified into its six geopolitical zones, with states randomly selected within each zone. Local government areas (LGAs) were then randomly chosen within each selected state, followed by the sampling of PHC facilities within these LGAs. This approach ensured a mix of urban and rural settings, reflecting the varied local contexts.

Data collection procedures

Data were collected through a comprehensive national survey using a standardized assessment tool designed to evaluate compliance with the RWHSS minimum standards. This tool covered several domains, including infrastructure, staffing, availability of essential medicines, service delivery and governance. Data collection process included three processes of pre-assessment training, facility visits and data recording.

Pre-assessment training: Data collectors, including public health professionals and health officers,

Table 1 Summary of services along the continuum of care provided by the different PHC levels [29]

Categories	Household and Community	Health Outreach Post	Primary Health Care Centre (Level 1)	Primary Health Care Centre (Level 2+)
Human Resources	Community Health Influencers, Promoters, and Services (CHIPS) Agents	Junior Community Health Extension Workers (JCHEWs)	CHEWs	Midwives
	Community Health Extension Workers (CHEWs) (Midwives in a few places)			CHEWs
Hours of Opening	-	8 hours	8 hours	24 hours
Classification		Active	Active	Functional
Service Pack	Home-based care Pack	Outreach Pack	Minimum Pack	Intermediate Pack
Key Services Provided				
ANC and PNC	Available	Available	Available	Available
Delivery Services	Not available	Not available	Not available*	Available
Basic Emergency Obstetrics and Newborn Care	Not available	Not available	Not available	Available
Immunizations	Available	Available	Available	Available
Infants and young children feeding	Available	Available	Available	Available
Case Management of Childhood illness	Available	Available	Available	Available
Screening for Communicable Diseases (CDs)	Available	Available	Available	Available
Screening for Non - Communicable diseases (NCDs)	Available	Available	Available	Available
Treatment of CDs and NCDs	Not available	Not available	Not available	Not available
Referral				
Supervision				

**May be available if a delivery room exists.*

underwent comprehensive training on the use of the assessment tool and survey protocols to ensure data accuracy and consistency.

Facility visits: Trained teams visited each selected PHC facility, conducted structured interviews with facility managers and performed direct observations using checklists to verify the availability and condition of infrastructure, equipment and essential medicines.

Data recording

Information was recorded through the computer-assisted personal interviewing method (CAPI) using the Open Data Kit software (ODK) with the purpose of minimizing errors and facilitating real-time data entry.

Between July and September 2022, 25 736 public PHC facilities were evaluated across all six geopolitical zones. The distribution included 6299 (24.4%) outreach posts,

6521 (25.3%) level 1 facilities, and 12 916 (50.2%) level 2+ facilities. The North-west geopolitical zone had the highest number of facilities, with 7099 (27.6%) facilities.

Compliance assessment

The compliance assessment focussed on the eight thematic domains outlined in the RWHSS: medicines, vaccines and health commodities; health infrastructure; human resources; laboratory services; health financing; health information system; leadership and governance; and partnerships and participation. However, the analysis in this article primarily covers infrastructure (including waste management), human resources for health, essential medicines, commodities service provision (including catchment population and utilization) and equipment (including laboratory infrastructure).

The scoring and data analysis are outlined as follows:

- The checklists were assessed using binary scores of 1 (yes) or 0 (no), reflecting the availability of the basic items required at each facility type.
- Domain scores were determined by calculating the mean scores of items under each domain for the respective facilities.
- The resulting continuous variables were converted into percentages, enabling comparisons of performance across facilities.
- Outputs were visualized using radar charts and balloon plots to compare performance across facility types and geopolitical zones.

Inclusion criteria

The inclusion criteria for the PHC facilities in the study were:

- Public PHC facilities registered with the relevant state or local government authority.
- Facilities operational for at least 1 year prior to the study commencement.
- Facilities providing a minimum set of essential health services as outlined by the RWHSS.

Results

Compliance outcomes across the minimum standards domains

Supplementary material 1 is a detailed table of the checklists provided in the RWHSS indicating the minimum standards for infrastructure, services, human resources, health commodities and medications.

The median compliance with the minimum standards was 40.7%, with performance ranging from 1.2% to 98.0%. The median performance score was 32.6% for outreach posts ranging from 5.6% to 96.0%, while for level 1 and level 2+ PHC facilities, the performance scores were 31.5% (range 2.6% to 86.6%) and 50.9% (range 1.2% to 98.0%), respectively.

Health infrastructure

The subdomains analysed within the health infrastructure domain were building and premises, waste disposal and other requirements such as emergency transportation and communication. The national compliance with the minimum standards for health infrastructure, irrespective of facility classification, was 39.2%. When disaggregated into facility categories, greater compliance with the minimum standards for building and premises was observed among outreach posts (50.4%) and level 2+ facilities (48.3%). Level 1 facilities were the least performing for buildings and premises, while outreach posts were the least compliant with the minimum standards for waste disposal infrastructure.

The disaggregation of compliance indices according to geo-political zones and facility types is depicted in Fig. 2.

Outreach posts in the South-South region were the most compliant with minimum standards for waste disposal (66.0%) infrastructure. PHC facilities classified as level 2+ in the North-east compiled the most for the minimum standards for building and premises (53.6%). Interestingly, the level 1 PHCs in the North-east region were also the least compliant with minimum standards for buildings and premises (31.0%). This suggests that efforts to improve the North-east's PHC infrastructure may have focussed on outreach posts and level 2+ facilities.

Human resources for PHC

Human resources for PHC were classified as clinical or support staff. Clinical staff refers to health workers who administer diagnostic or treatment services to patients. These include CHWs, nurses and doctors where available. Support staff includes cleaners, security and other categories of personnel not involved in the clinical management of patients.

The median compliance score for human resources for health was 23.5%, ranging from 0% to 100%. On the basis of facility type, the performance scores for outreach posts and level 1 and level 2+ facilities were 25% (range 0% to 100%), 6% (range 0% to 52.5%) and 23.5% (range 0% to 100%), respectively. Most facilities scored below the minimum requirements for clinical personnel across the facility types (Fig. 2). This is depicted by national averages of 0.67%, 15.6%, and 30.5% for outreach posts and level 1 and level 2+ facilities, respectively. Compliance with the minimum requirements for support staff was also poor, with national averages of 49.1%, 11.9% and 14.9% for outreach posts and level 1 and level 2+ facilities, respectively.

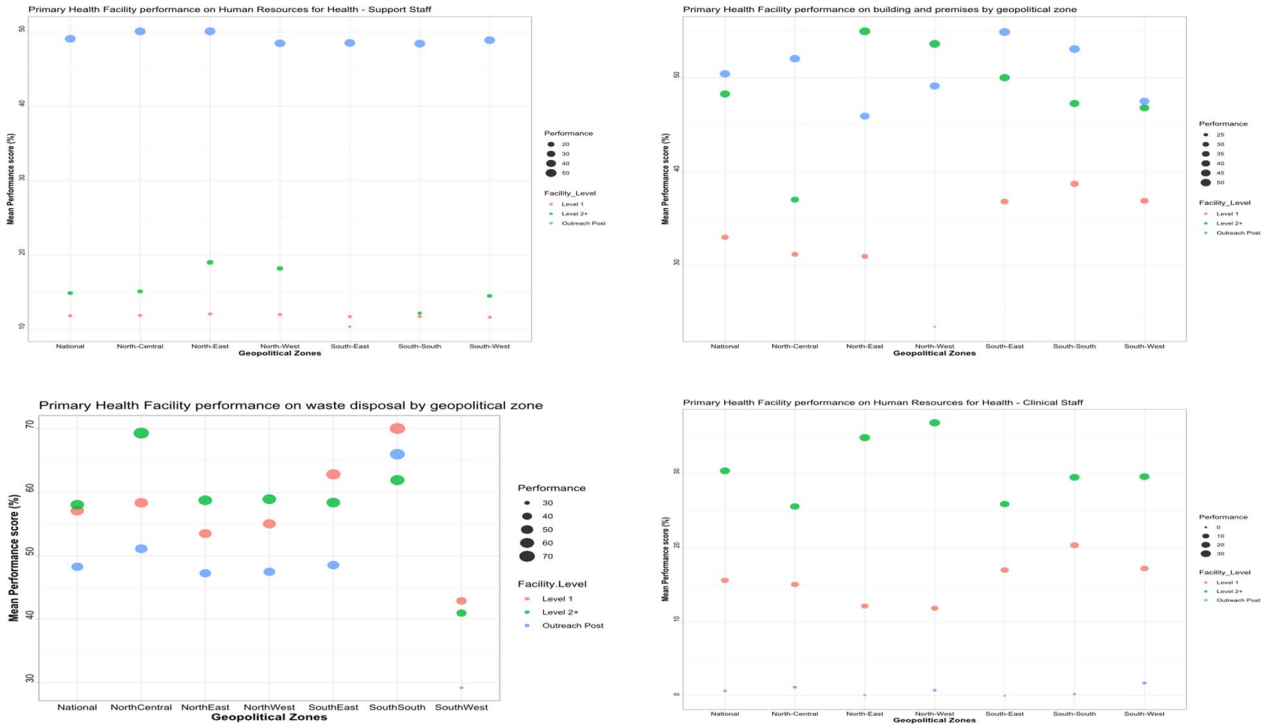

Fig. 2 Performance scores for building and premises (top left) and waste disposal (top right), as well as Human Resources for Health (HRH) performance scores for clinical staff (bottom left) and support staff (bottom right) based on minimum standards for primary health facilities in Nigeria

Outreach posts were observed to have the highest adherence to minimum requirements for support staff while conversely scoring low for clinical staffing. The implication is that many facilities may be providing zero to suboptimal quality of care. Non-clinically trained staff may provide clinical care in some facilities, particularly with little facility monitoring and supervision.

Essential services

According to the RWHSS, the essential services categories are maternal health, child health, adolescent health, reproductive health, communicable diseases and non-communicable diseases. At the national level, the median performance score was 53.7%, ranging from 0% to 100%. The median compliance with minimum standards of these essential services to be provided at the various facility types were 40.6% (range 27.5% to 54.5%), 48.8% (range 39.3% to 57.8%) and 61.0% (range 57.7% to 71.1%) for outreach posts and level 1 and level 2+ facilities, respectively (Fig. 3). Compliance with the minimum standards was the least for communicable disease services (40.4%).

Essential medicines, health commodities and equipment

Figure 4 shows the compliance of HFs with the minimum requirements for essential medicines, disaggregated according to health conditions, facility classification and geo-political regions. The RWHSS provides a checklist for categories of essential medicines for maternal health, child health, adolescent health and priority disease conditions for each facility type. Across all facilities surveyed nationwide, the median performance score was 43.8%. The median compliance scores for minimum standards of these essential medicines for the various facility types were 40.7%, 52.5% and 68.5% for outreach posts and level 1 and level 2+ facilities, respectively. The highest compliance with the minimum standards for this domain was 58.0% for medicines for priority diseases. In contrast, the least was 48.9% for maternal health medicines.

The RWHSS also prescribes the minimum health commodities and equipment expected at the various facility types. The categories of these commodities and equipment range across clinic equipment, consumables, laboratory equipment, medical equipment and general items. The median compliance scores for minimum standards of these essential health commodities and equipment for the various facility types were 33.1%, 44.2% and 56.3% for outreach posts and level 1 and level 2+ facilities, respectively. The highest compliance to the minimum standards for this domain was 76.4% for clinical equipment.

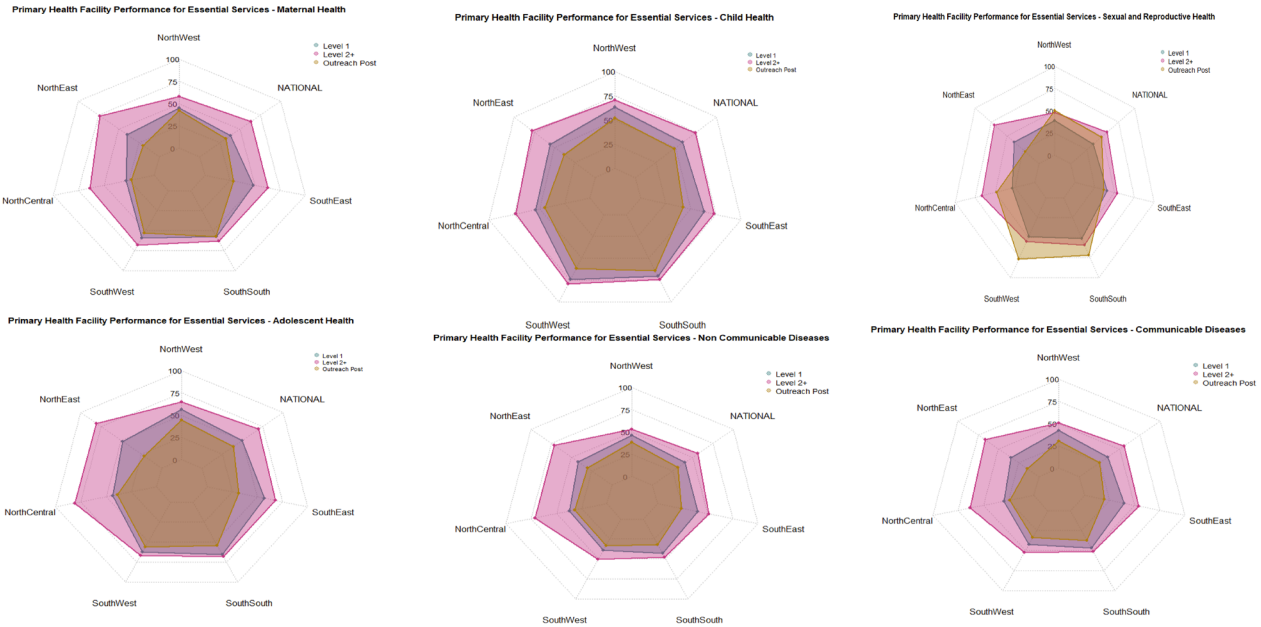

Fig. 3 Comparison of service performance scores by facility level and geo-political zones (a) maternal health (b) child health (c) sexual and reproductive health (d) adolescent health (e) non-communicable disease (f) communicable disease

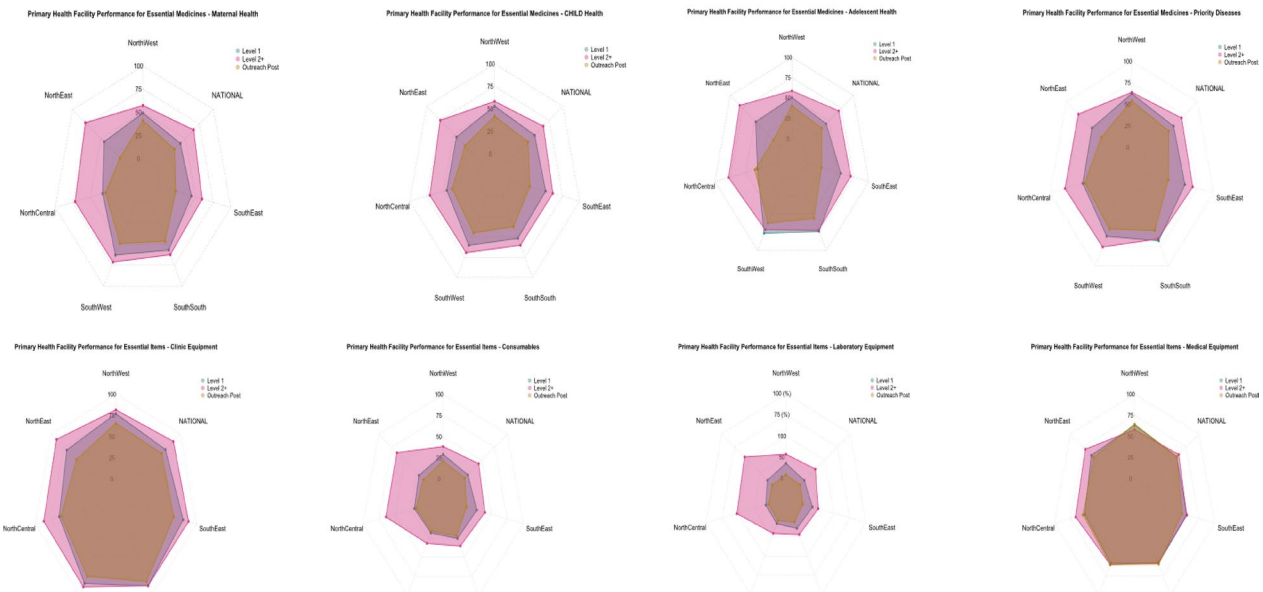

Fig. 4 Compliance scores for essential medicines, commodities and equipment by facility level and geo-political zones

In comparison, the least was 16.2% for laboratory equipment.

Discussion

Across the evolution of minimum standards for PHC in Nigeria, a comprehensive compliance assessment has not been conducted until now. Previous assessments have focussed on service delivery readiness and are limited to a sample of health facilities [17, 35]; as against the comprehensive approach of this evaluation, which aimed to assess all PHC facilities in Nigeria. Further, unlike most previous evaluations that used internationally standardized tools such as the World Banks' service delivery indicators, this assessment is contextualized to the local

minimum standards for PHCs in Nigeria, the RWHSS [29]. Thus, the current evaluation reflects compliance with the country's RWHSS as anticipated by the Alma Ata declaration. This assessment is highly needed to guide policy decisions in this context.

PHC in Nigeria is poor and faces significant challenges, such as inadequate funding, maldistribution and unskilled healthcare workers, insufficient infrastructure and equipment and a lack of essential medicines and commodities [17, 22, 35–38]. These challenges have resulted in poor health outcomes for the population, particularly in rural and underserved areas with limited access to healthcare [39]. For instance, maternal and child mortality rates have remained high, among the highest in sub-Saharan Africa, despite efforts by the government and partners to improve PHC over the years [40]. With 512 maternal deaths per 100 000 live births in 2018 [41], Nigeria accounts for over 34% of the global burden of maternal mortality [42]. In 2022, the country accounted for 111 under-five deaths per 1000 live births, one of Africa's highest child mortality rates [43]. Evidence has shown that a robust PHC system can improve population health outcomes, reduce all-cause mortality and is cost-effective in achieving UHC in LMICs [44–46]. Thus, the need to reverse the poor health indices in Nigeria and attain UHC by strengthening the PHC system. Other effects of poor PHC in Nigeria are poverty [47], impaired productivity [48], increased economic burden of managing illnesses by individuals and PHCs [49], poor management of infectious diseases and weakened health systems that lack resilience and sustainability to manage health profiles of especially those from low socio-economic status [50, 51]. Moreover, the weakened PHC as seen in Nigeria also create social disparities in health outcomes [52], especially for marginalized and hard-to-reach populations [53].

This assessment of PHC facilities in Nigeria reveals significant variations in compliance with the minimum standards set forth by the RWHSS. The overall median compliance rate across all facilities was 40.7%, with a broad range of performance scores from 1.2% to 98.0%. This variation underscores the uneven quality of PHC services across the country and highlights critical areas needing improvement.

The performance scores for different facility types varied substantially. Outreach posts had a median performance score of 32.6%, with a range from 5.6% to 96.0%. Level 1 facilities scored a median of 31.5%, ranging from 2.6% to 86.6%, while level 2+ facilities had a median score of 50.9%, with scores ranging from 1.2% to 98.0%. The analysed data indicate that while some facilities meet or exceed the minimum standards, many others fall significantly short, particularly at the lower levels of the PHC system. There is a growing acknowledgment that delivering quality PHC services requires an enduring infrastructure, essential medicines, commodities, adequately staffed and skilled health workers and effective, safe, people-centred care that is timely, equitable, integrated and efficient [1, 17, 54–56]. However, public PHC facilities in Nigeria do not provide sufficient infrastructure, human resources for health, essential medicines, commodities service provision and equipment, as performance is below 50% on average across the RWHSS minimum standards domains. This has affected the delivery and uptake of quality PHC services in Nigeria [35].

The compliance with minimum standards for health infrastructure was found to be 39.2% nationally. This domain includes building and premises, waste disposal and other critical requirements such as emergency transportation and communication. The compliance rates varied by facility type and region. Outreach posts showed higher compliance for building and premises (50.4%) compared with level 1 facilities (31.0%). Conversely, outreach posts had lower compliance with waste disposal standards.

Geographically, outreach posts in the South-South region demonstrated the highest compliance with waste disposal infrastructure at 66.0%, while level 2+ facilities in the North-east achieved the highest compliance for building and premises at 53.6%. However, level 1 facilities in the North-east were the least compliant in this category, suggesting that infrastructural improvements in the North-east may have been unevenly distributed, focussing more on outreach posts and level 2+ facilities.

These findings indicate that while some regions and facility types are performing better than others which corroborated [38], there is a need for more uniform improvements in infrastructure across all areas and facility levels. Targeted interventions should address the specific weaknesses identified, such as waste disposal in outreach posts and building standards in level 1 facilities, particularly in the North-east. The ongoing security challenges in the North-east could be culpable for the infrastructure gap [57].

The compliance score for human resources was notably low, with a median of 23.5%, ranging from 0% to 100%. This low compliance is indicative of widespread shortages and inadequacies in staffing. Outreach posts had a median score of 25% for human resources, level 1 facilities scored 6%, and level 2+ facilities scored 23.5%. Clinical staffing levels were particularly poor, with national averages of 0.67%, 15.6% and 30.5% for outreach posts and level 1 and level 2+ facilities, respectively. Support staff compliance was also insufficient, with averages of 49.1%, 11.9% and 14.9%, respectively.

The significant variation in staffing compliance across facility types suggests that many facilities, especially level 1 ones, lack the necessary clinical personnel. This deficiency compromises the quality of care and may result in non-clinically trained staff performing clinical duties, potentially leading to substandard care [37]. Addressing these staffing issues requires a concerted effort to recruit, train and retain qualified healthcare professionals, as well as improving monitoring and supervision to ensure adequate staffing levels.

Compliance with essential services was generally better compared with other domains, with a national median performance score of 53.7%, ranging from 0% to 100%. The compliance scores for various facility types were 40.6% for outreach posts, 48.8% for level 1 facilities and 61.0% for level 2+ facilities. Among the essential services, compliance was lowest for communicable disease services at 40.4%.

The relatively higher compliance for essential services at level 2+ facilities suggests that these facilities are better equipped to provide comprehensive services. However, the overall low compliance for communicable diseases indicates a need for improved focus and resources in this area. Strengthening the provision of essential services, particularly for communicable diseases, is crucial for improving health outcomes and controlling disease spread [58].

The median compliance score for essential medicines was 43.8%, with scores of 40.7% for outreach posts, 52.5% for level 1 facilities and 68.5% for level 2+ facilities. Compliance with essential medicines for priority diseases was highest (58.0%), while compliance for maternal health medicines was lowest (48.9%).

In terms of health commodities and equipment, the median compliance scores were 33.1% for outreach posts, 44.2% for level 1 facilities and 56.3% for level 2+ facilities. Compliance was highest for clinical equipment (76.4%) but lowest for laboratory equipment (16.2%).

These findings highlight a significant gap in the availability of essential medicines and equipment, particularly in outreach posts and level 1 facilities. The low compliance with laboratory equipment magnified a critical need for improved diagnostic capabilities. Ensuring the availability of essential medicines and equipment is fundamental to delivering effective healthcare services [35].

This assessment identifies gaps in compliance with minimum standards for services available in public PHC facilities in Nigeria. The results demonstrate that public PHC facilities nationwide are not optimally positioned to meet UHC and SDG demands. While this may be familiar information, the assessment identifies the areas in which future PHC interventions and investments should focus. PHC stakeholders can utilize the findings to direct appropriate support and guidance to the national and subnational governments towards improving the structural and functional quality of PHC, bringing all citizens closer to universal access to quality healthcare [59].

The findings also contribute to implementing NNHA, which prescribes regular evaluations and issuance of certificates of standards to HFs and ensures that the standards are updated per the change in time and new evidence. In addition, the results provide a foundation for empirical studies to understand the factors responsible for the poor compliance observed and to determine what policy or program interventions may be needed to address identified bottlenecks.

Recommendations

This paper concludes by offering these recommendations.

Strengthening compliance mechanisms and continuous monitoring and evaluation

Given the significant gap in compliance with the RWHSS minimum standards across public PHCs facilities in Nigeria, there is an urgent need to enhance compliance mechanisms. This could involve regular and systematic monitoring, evaluation, and reporting processes at both national and sub-national levels. In addition, establishing a robust system to track compliance at all levels will enable authorities to identify specific challenges and implement targeted interventions for improvement. Implementing a continuous and adaptive monitoring and evaluation system is required. Regular assessments of compliance with established standards should inform ongoing intervention strategies for PHC revitalization. This includes learning from successful cases, benchmarking with other countries, sharing best practices, reviewing metrics and promptly addressing emerging challenges to ensure sustained improvements in the quality of healthcare services.

Capacity building and training

To address the deficiencies in infrastructure at PHCs, human resources and service provision, there should be an emphasis on comprehensive capacity building and training programs. These programs should target healthcare workers, managers and other stakeholders involved in PHC delivery. Training should encompass both clinical skills and managerial competencies to ensure that PHC facilities operate efficiently and effectively to meet up with the UHC and achieve health SDGs.

Resource allocation and infrastructure improvement

Adequate allocation of resources is fundamental for the revitalization and smooth running of public PHC facilities. Authorities should prioritize investments in

infrastructure development, ensuring that PHC facilities have the necessary equipment, medicines and commodities. The endemic corruption that results to diverting of resources for optimum PHC management should be addressed. Other areas include addressing challenges related to staffing levels, high attrition rates *(Japa Syndrome)* and skill mix, thus enhancing the overall capability of the facilities.

Policy advocacy for national standards

Establishing clear and enforceable national minimum standards for PHC is crucial. Policy-makers should consider the adoption and implementation and enforcement of comprehensive national standards that align with global best practices. The procedures should be clear and concise and penalties for non-compliance stated. This involves engaging key stakeholders in health and allied fields, including healthcare professionals, legal experts, community representatives, international collaborators and funders and policy-makers to develop standards ensuring they reflect the diverse health needs of the population, especially those that are marginalized or hard-to-reach.

Community engagement and empowerment

To enhance the accessibility and uptake of PHC services, there is a need for active community engagement and empowerment of key groups such as women, influencers, youths and people living with disabilities (PLWD). Communities especially those located in the rural areas and difficult terrains should be educated on the importance of PHC services, and their involvement in decision-making processes should be encouraged. This approach ensures that PHC services are responsive to the needs and expectations of the communities they serve.

Cross-sectoral collaboration

Collaboration across different sectors of Nigeria is essential for comprehensive PHC revitalization. Engaging ministries of finance, budget and national planning, environment, education, women's affairs and other relevant sectors can help secure the necessary support for sustained improvements in the Nigerian health system. This collaborative approach recognizes that the success of PHC revitalization is interconnected with broader socioeconomic development.

The authors are optimistic that by implementing these recommendations, Nigeria can make significant strides towards achieving UHC and meeting the health-related SDGs by 2030.

Conclusions

The assessment of PHC facilities in Nigeria reveals significant gaps in compliance with minimum standards, with substantial variations across facility types and regions. Addressing these gaps requires targeted investments in infrastructure, human resources, essential services and medical supplies. By implementing focussed interventions and strengthening monitoring mechanisms, Nigeria can improve the quality of PHC services and work towards achieving universal health coverage (UHC) and better health outcomes for its population. The recommendations proffered will help to achieve the health-related Sustainable Development Goals (SDG) in Nigeria.

Abbreviations

FCT	Federal Capital Territory
LGA	Local government areas
NNHA	Nigerian National Health Act
NPHCDA	National Primary Health Care Development Agency
PHC	Primary healthcare
RWHSS	Revised Ward Health Systems Strategy
SDG	Sustainable Development Goal
UHC	Universal health coverage

Supplementary Information

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Supplementary Material 1.

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Author contributions

F.S., L.U. and S.S. conceptualized the study. F.O., O.A., O.O., H.E. and T.O. designed data collection plan and collected the data. C.O., O.U. and E.E. designed the data analysis plan. O.U. and E.E. analysed the data. C.O., O.U. and E.E. developed the first draft. S.S., L.U., F.O., O.A., O.O., H.E., T.O. and F.S. critically reviewed the first draft. O.S., S.N. and H.I.O. critically reviewed and revised it for intellectual content. All authors reviewed and approved the final draft

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Availability of data and materials

Data were used with permission from NPHCDA. Data may be obtained from NPHCDA and are not publicly available.

Declarations

Ethics approval and consent to participate

This research adhered to the principles outlined in the Declaration of Helsinki. Prior to commencement, informed consent was obtained from each participant. Additionally, the research protocols were approved by the National Emergency Routine Immunization Coordinating Centre (NERICC) of the National Primary Health Care Development Agency (NPHCDA) in Abuja, Nigeria.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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