

Research Article

Assessment of Primary Health Care System Performance in Nigeria: Using the Primary Health Care Performance Indicator Conceptual Framework

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Abstract—Health gains oftentimes associated with income growth have been stubbornly slow in Nigeria in the past 25 years. One plausible reason for this stagnation is underperformance in the country's primary health care (PHC) system. The Primary Health Care Performance Indicators conceptual framework is used to examine Nigeria's PHC system and possible causes of underperformance. Analysis was conducted using a variety of sources including recent facility level information from the World Bank Service Delivery Indicators Survey. Results show that Nigeria has a relative abundance of PHC centers, reasonable geographic access to PHC, and relatively high health worker density. However, the performance of the PHC system is hindered by (1) segmented supply chains; (2) a lack of financial access to PHC; (3) a lack of infrastructure, drugs, equipment, and vaccines at the facility level; and (4) poor health worker performance. Altogether, these factors reflect two overarching system-level challenges—financing and governance—that are key root causes of the dysfunctions observed in the PHC system in Nigeria. Compared with peer African countries, Nigeria ranks low on nearly all PHC performance indicators. The government has taken important steps to address these root causes of underperformance, but policy gaps remain in achieving sustainable and equitable provision of PHC for the people of Nigeria.

INTRODUCTION

Primary health care (PHC) is the backbone of a health system. Furthermore, quality PHC initiatives have been recognized as fundamental to improving health outcomes.¹ The strength of a country's primary care system was negatively associated with mortality in Organization for Economic Cooperation and Development countries,² and PHC also has improved population health in low- and middle-income countries.^{3,4} The Declaration of Alma-Ata in 1978,⁵ the 1987

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Bamako Initiative,⁶ and the 2006 Abuja Call⁷ all emphasized the importance of investing in PHC for health. Following the World Health Report “Health Systems: Improving Performance” in 2000,⁸ the World Health Organization’s World Health Report “Primary Health Care (Now More Than Ever)” in 2008 asserted that PHC reforms can deliver equitable health services and secure the health of communities.⁹ Given that PHC is essential to strengthening health systems¹⁰ and achieving the Sustainable Development Goals,¹¹ it is important to understand fundamental causes of underperformance of PHC systems.

In this article, we examine the performance of Nigeria’s PHC system. The country emerged as Africa’s largest economy in 2014^[a] with a per capita gross domestic product (GDP) of 5,991 USD. However, compared with other countries, Nigeria has underperformed on important health outcomes such as child mortality (Figure 1). One of the potential reasons for this is the poor performance of the country’s PHC system.

Researchers have sought root causes of poor PHC coverage, focusing largely on two factors. First, many argue that poor performance is due to lack of sufficient health care facilities.¹²⁻¹⁵ Some scholars have argued that low PHC coverage is a result of an insufficient health workforce.^{14,16,17} The literature largely points to bottlenecks in primary health care inputs, including

health facilities and health workers, to explain Nigeria’s poor performance in PHC coverage. However, these factors do not convey the whole story. This article draws upon a holistic conceptual framework to examine Nigeria’s primary health care system. We explore the extent to which service delivery, inputs, health financing, and governance limits the performance of Nigeria’s primary health care system. The aim of this article is to identify root causes of PHC underperformance, highlight areas of future research, and provide a framework by which the future policy agenda can be shaped.

In this article, we first introduce the conceptual framework, entitled the Primary Health Care Performance Initiative (PHCPI), followed by the data sources for analysis. Then, we examine each component of the PHCPI framework in the following order: outcomes, outputs, service delivery, inputs, and system. We also conduct country comparisons to benchmark PHC performance in Nigeria. Lastly, we examine the policy landscape, followed by concluding remarks.

CONCEPTUAL FRAMEWORK

We have used the PHCPI conceptual framework to identify key factors that contribute to low coverage of PHC in Nigeria (Figure 2). This framework is particularly useful because it

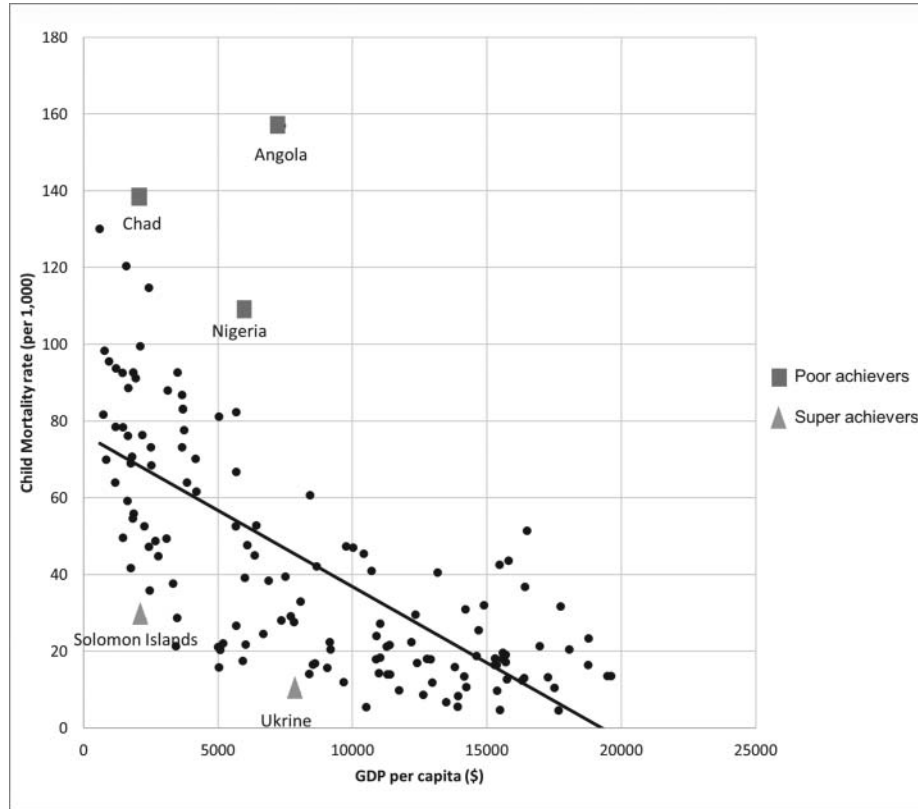


FIGURE 1. Child Mortality Rate and GDP Per Capita for 173 Countries, 2015. Source: Adapted from Ref. 23

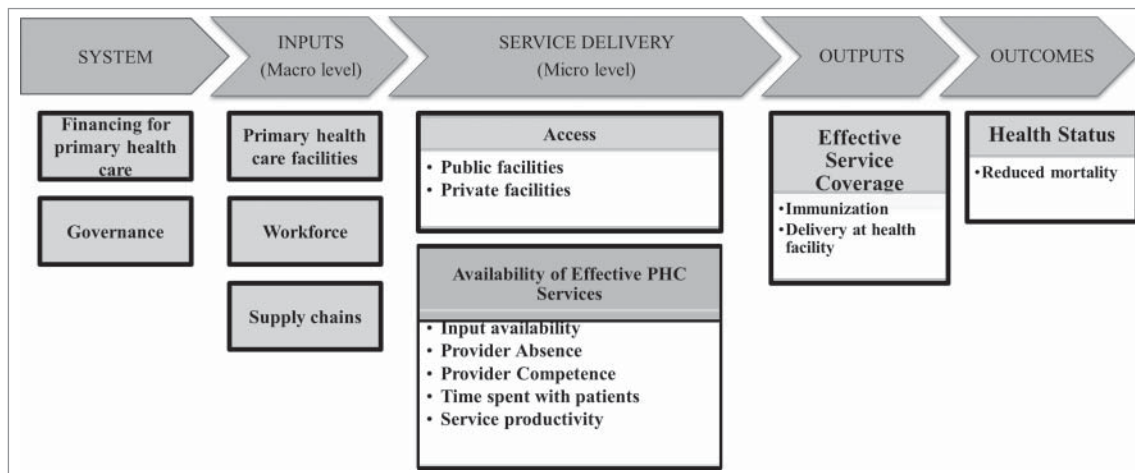


FIGURE 2. Primary Health Care Performance Initiative Conceptual Framework

highlights a critical area—service delivery—that has been largely neglected in PHC performance measurement.

The PHCPI framework is based on several important prior systems frameworks, such as the control knobs framework,¹⁸ health system performance assessment,¹⁹ economic models of supply and demand, and Starfield's key characteristics of high-performing primary health care systems.²⁰ The PHCPI conceptual framework reflects a structure similar to the commonly used input–process–output–outcome logic model, indicating logical relationships between constructs. We included a “system” domain prior to the inputs domain to indicate the importance of the modifiable PHC system structure as emphasized in the control knobs framework. Furthermore, the framework exhibits an overall directionality of influence, where the system domain influences the inputs domain, which affects the complex interplay within the service delivery domain. Thereafter, successful service delivery contributes to effective outputs, which subsequently affect outcomes. In this article, we examine the system, input, and service delivery constraints that are leading to underperformance in outputs and outcomes. There is directionality to the conceptual model, and in this article we chose to first highlight the end point of the model—outcomes—followed by each previous component of the health system. We chose to do this because it is important to first understand the outcomes that need changing and then closely examine key root causes of the outcome, from most proximal to the most distal. We used a simplified version of PHCPI, focusing on key identified indicators. For example, due to data unavailability, we do not cover Starfield's person-centered PHC service delivery, which is an important component in the original PHCPI framework.

DATA SOURCES

We use a variety of data sources in this article to understand PHC performance in Nigeria. These sources include the Demographic and Health Surveys for outcome indicators,²¹ the Nigeria General Household Survey regarding PHC access,²² the World Development Indicators regarding poverty headcount,²³ the World Health Organization (WHO) National Health Account for financing data,²⁴ the WHO Global Health Workforce statistics for health worker density data,²⁵ and the Advancing Child Health via Essential Medicine Vendors survey for Patent and Proprietary Medicine Vendors (PPMVs) data.²⁶ In addition to these data sets, we mainly rely on a relatively new data source (the Nigeria Service Delivery Indicator survey)²⁷ for insights into what is happening in health facilities.

The Service Delivery Indicator (SDI) data were collected through multicountry health facility surveys, allowing for a comparison between Nigeria and other countries when examining primary health care performance. SDI surveys have been carried out in Tanzania (2012), Senegal (2012), Kenya (2013), Nigeria (2013), and Uganda (2014). Table 1 shows the sample size for each country.

Though sampling strategies were adapted to each country's situation, the same general method (i.e., multistage clustered sampling) was used. The sampling strategy allowed for disaggregation by geographic location (rural and urban) in all five countries and by provider type (public and private) in Uganda, Kenya, and Nigeria (only public health facilities were surveyed in Tanzania and Senegal). According to published World Bank SDI country reports, data are representative at the national level for Uganda and Kenya. No information is provided on the issue of representativeness of

	Number of Observations		
	Facilities	Health Worker Absence	Clinical Vignettes Assessment
Tanzania	403	2573	574
Senegal	151	730	153
Uganda	401	2383	745
Nigeria	2,480	12,678	5,153
Kenya	294	1862	629

TABLE 1. Sample Size by Country. Source: Adapted from Ref. 37

the data at national level in Nigeria, but we feel that it is highly unlikely that these data could be representative at the national level given that data were collected in only 12 out of 36 states.

Table 2 summarizes the data modules in the SDI survey. In particular, provider ability was measured using clinical vignettes, which are validated clinical cases that are designed to test provider knowledge for how to treat certain common conditions associated with primary care. Using SDI data from 12 surveyed states in Nigeria, we generated national- and state-level averages for key indicators. The quality of interstate comparisons in Nigeria is relatively high because of high levels of intrastate facility sampling.

PHC PERFORMANCE: OUTCOMES, OUTPUTS, SERVICE DELIVERY, AND INPUTS

Outcomes

The mortality decline has not been as rapid as expected in Nigeria. We used two indicators (i.e., infant mortality rate

and under-five mortality) for cross-validation and found that infant mortality has declined by 21% from 1990 to 2013, and under-five mortality (U5M) declined by 34% over the same period. Though this represents a decline, it is a decline that is slower than expected when compared to benchmark countries (i.e., Kenya, Uganda, Tanzania, and Senegal) over time (Figure 3). Furthermore, though Millennium Development Goal four targeted a U5M rate reduction by two thirds between 1990 and 2015, Nigeria did not meet this target and underperformed compared to peer countries.²⁸ According to WHO estimation, U5M was 105 per 1,000 live births in Nigeria in 2015, equaling about 760,000 deaths given the large population size in this country.

The first step in assessing key root causes of the slow rate of mortality decline (the outcome in the PHCPI framework) is to look at coverage trends of key interventions (outputs in the PHCPI framework).

Outputs

Looking back at trends in intervention coverage over the last 25 years, the overall trend in intervention coverage is quite flat (Figure 4), with 2013 coverage levels largely below 40% for each of the indicators. We now want to examine other factors in the PHCPI conceptual framework that will hopefully shed light on the persistently low levels of coverage.

Service Delivery

Access

Although there are some isolated pockets where availability of services is limited, overall Nigeria appears to have a

Module Number	Module Title	Interviewee	Content
Module one	Facility information	Health facility superintendent/most senior health worker present	General information about the facility, including infrastructure, equipment, materials and supplies, and availability of drugs
Module two	Staff roster	Health facility superintendent/most senior health worker present	
Module 2A	First visit	Health facility superintendent/most senior health worker present	List of all health workers and their characteristics
Module 2B	Second visit	Observation on ten randomly selected health workers	Measures availability of workers and their characteristics
Module three	Case simulations	Ten randomly selected health workers	Clinician information, introduction, and seven consecutive clinical vignettes
Module four	Health facility financing	Health facility superintendent/most senior health worker present/accountant	Financial cash and non-cash support, expenditures, user fees, planning, and financial management
Module five	Exit interview	Patients exiting the facility	Exit interview of patients

TABLE 2. Service Delivery Indicator Survey Instruments. Source: Adapted from Ref. 37

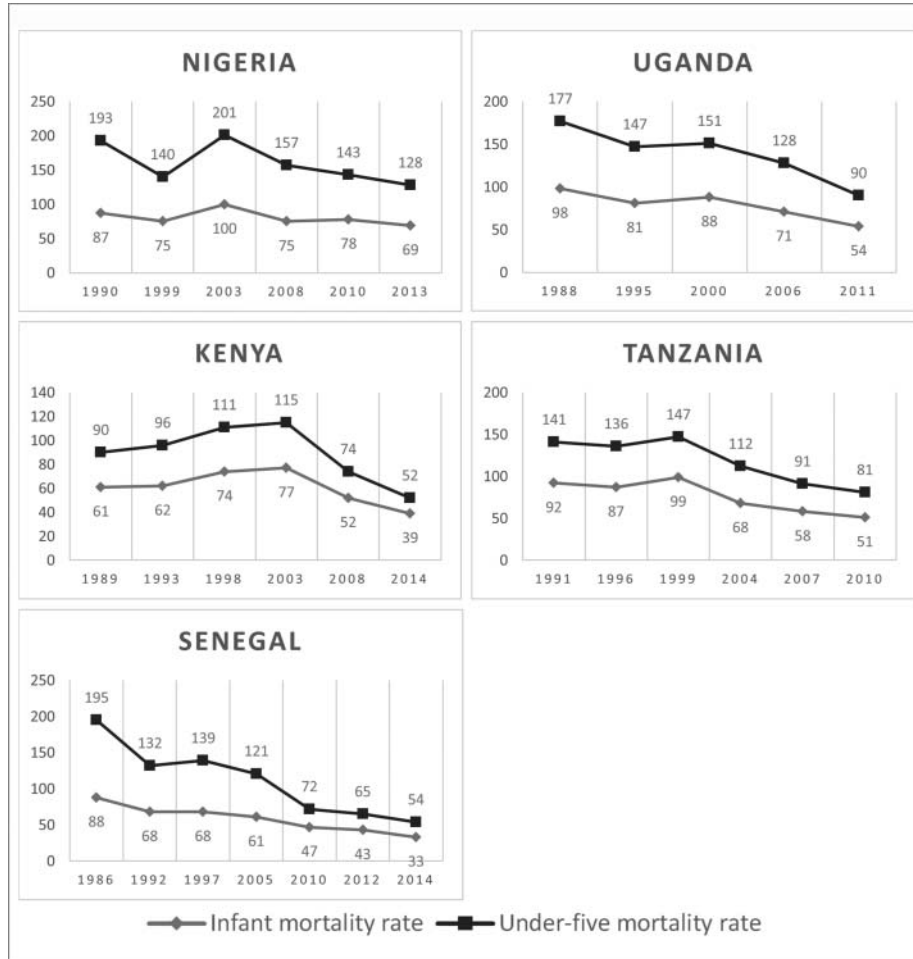


FIGURE 3. Mortality Trends Over Time. Source: Adapted from Ref. 21

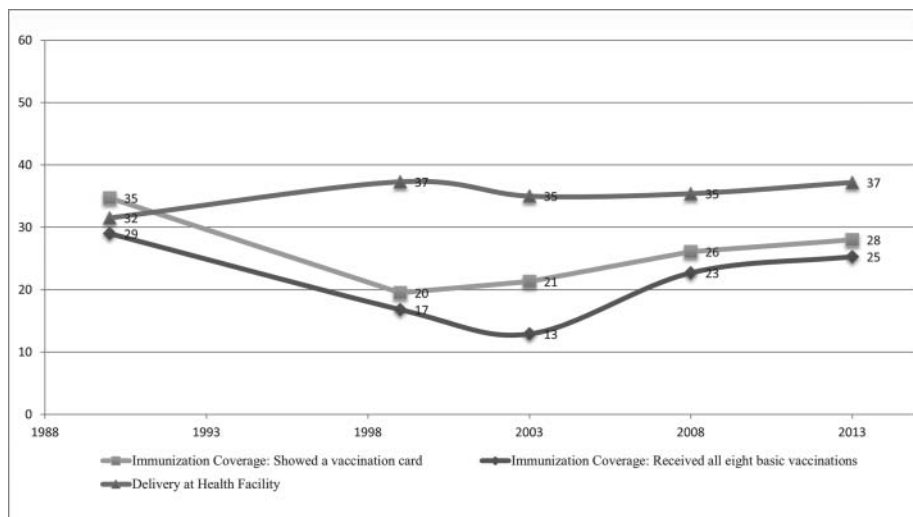


FIGURE 4. Long-Term Stagnation in Coverage of Basic Health Interventions. Source: Adapted from Ref. 21

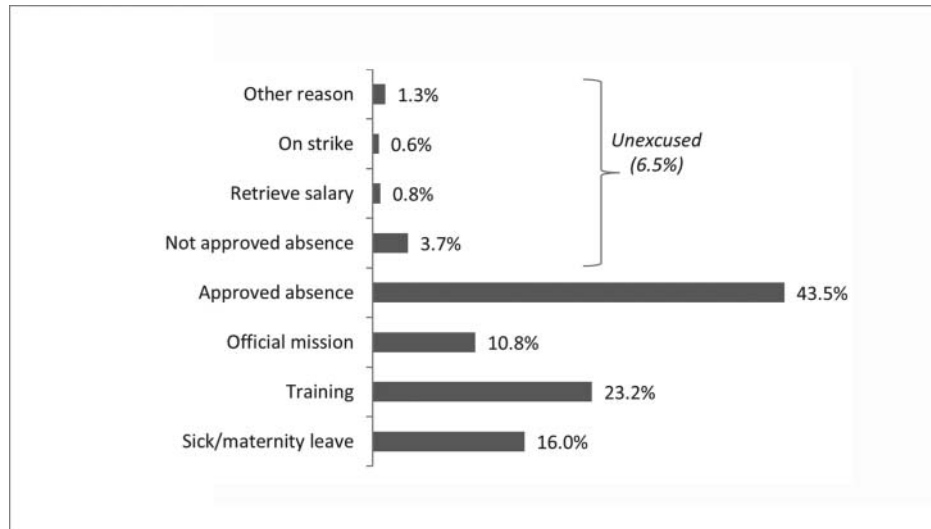


FIGURE 5. Reasons for Absences. Source: Adapted from Ref. 38

sufficient facility density and, as a result, most Nigerians have geographic access to primary health care. This is confirmed when looking at the results from the General Household Survey (2013) that indicates that 75% of rural respondents reside within two kilometers of a public PHC facility, and 95% reside within eight kilometers.²² However, financial access is a major challenge. The average cost of a public PHC visit is 2.30 USD for child patients and 3.20 USD for adult patients (Table 3). However, it can go up to as much as 8 USD, which is extremely burdensome for the 45% of Nigerians who live on less than 2 USD a day and 28% who live on less than 1.25 USD a day, according to World Development Indicators.²³ User fees for primary care services are surprisingly high relative to consumers’ ability to pay. Table 3 shows user fees for registration and consultations by state.

Importantly, the private sector must be acknowledged as an integral part of PHC provision. As the first point of care for the majority of poor patients, PPMVs are often asked for diagnostic advice on difficult medical conditions.²⁶ Though there is evidence that PPMVs refer patients to public PHC facilities, these referrals are frequently delayed and informal.²⁶ The technical quality of services in the private sector is variable. About 50% of PPMVs have qualified staff (23% run by nurses, 21% by community health extension workers [CHEWs], and 4% by pharmacists) with a median of nine years of experience.²⁶ These point to the need for training, more standardized referral processes, and quality assurance by the Pharmacy Council of Nigeria. Given the high volume of poor patients visiting pharmacies and PPMVs to obtain drugs, pro-poor public financing for PHC services should consider how to leverage the private sector and improve its quality.

Input Availability at the Facility Level

There is a general shortage of drugs and supplies available in the primary health care system. Table 4 shows the percentage of health facilities with the required essential drugs and vaccines in stock by state. Overall availability for vaccines (76%) is better than that for essential drugs (49%) but far from universally available. Table 4 shows the availability of the minimum set of medical equipment (sterilizers, stethoscopes, blood pressure cuffs, and refrigerator if applicable) by state. Only 20% of facilities have all of the required minimum equipment. Beyond drugs and supplies, facility

	OOP: Child Patient	OOP: Adult Patient	User Fees: Registration	User Fees: Child Consultation	User Fees: Adult Consultation
Anambra	2.3	2.8	3.5	2.2	3
Bauchi	1.2	1.5	0.1	0.1	0.1
Bayelsa	5.5	7.9	10	2.5	4.4
Cross River	2.0	3.8	3.4	0.7	2.3
Ekiti	1.3	2.0	1.6	0.3	0.2
Imo	2.8	4.9	6.5	2.7	4
Kaduna	1.9	2.9	2.2	1.5	1.8
Kebbi	1.1	1.3	0.3	0	0
Kogi	3.7	3.6	1.7	1	1.5
Niger	2.0	2.2	0.6	0.2	0.3
Osun	0.5	0.7	1.3	0.5	0.5
Taraba	3.9	5.2	2.2	0.7	1.6
Average	2.3	3.2	2.8	1	1.6

TABLE 3. Out-of-Pocket Payment for Primary Health Care (USD). Source: Adapted from Ref. 38

	Availability of Essential Drugs (%)	Availability of Vaccines (%)	Minimum Equipment (%)	Minimum Infrastructure (%)
Anambra	59	80	27	37
Bauchi	41	69	13	26
Bayelsa	52	82	38	22
Cross River	54	73	12	24
Ekiti	48	83	36	31
Imo	58	82	21	26
Kaduna	54	73	22	26
Kebbi	20	74	11	14
Kogi	46	80	17	10
Niger	50	73	9	13
Osun	43	78	25	37
Taraba	58	59	5	13
Average	49	76	20	23

TABLE 4. Input Availability. Source: Adapted from Ref. 38

infrastructure is also a serious limitation in Nigeria's primary health care system. As seen in Table 4, basic infrastructure (electricity, running water, and toilets) is missing at 77% of facilities.

Provider Absence

Table 5 shows that there are 3.8 health workers available for consultations in an average primary health care facility and provider absenteeism is measured at 34% among SDI surveyed facilities. Most of the providers were on approved absence (Figure 5) and so there might be a management issue to address with regard to excused absence.

	No. of Health Workers Conducting Consultations	Absence Rate (%)
Anambra	3.6	36
Bauchi	3.6	32
Bayelsa	4.4	61
Cross River	4.9	33
Ekiti	5.4	36
Imo	4.3	48
Kaduna	3.2	30
Kebbi	3.9	26
Kogi	3.3	42
Niger	3.0	21
Osun	3.5	26
Taraba	2.2	20
Average	3.8	34

TABLE 5. Provider Availability. Source: Adapted from Ref. 38

Provider Competence

Provider knowledge and ability is often low and uneven, measured by low diagnostic accuracy (42%) and limited ability to manage maternal and newborn complications (11%; Table 6).

Using pneumonia as an example, the key findings from vignette data are that presentations of pneumonia were accurately diagnosed by 43% of health workers interviewed. Irrespective of diagnosis, at least one antibiotic that is potentially efficacious against pneumonia was prescribed in 58% of vignette answers.

The low scores for provider ability in Nigeria raise questions about the quality of care at the primary level. From key informants we know that there is a dire need for training and capacity building of existing staff, many of whom have not had training in over ten years and have received few if any visits from supervisors. Overall, the human resource context for PHC in Nigeria is one where considerable change and evolution is needed.

Time Spent with Patients and Service Productivity

Using time spent with patients as a quality measure, SDI data show that on average health workers spend about 11 minutes with a patient in a given visit (Table 6). The productivity of

	Correctly Diagnose Common Conditions (%) ^a	Correctly Manage Maternal and Neonatal Complications (%) ^b	Time Spent with Patients
Anambra	22	6	13.7
Bauchi	30	8	6.6
Bayelsa	38	12	15.6
Cross River	34	5	20.3
Ekiti	43	3	11.3
Imo	33	23	12.1
Kaduna	35	1	11.1
Kebbi	57	32	9.6
Kogi	50	4	11.4
Niger	41	16	9.7
Osun	57	19	9.9
Taraba	51	14	13.6
Average	42	11	11

TABLE 6. Provider Competence and Time Spent with Patients. ^aAcute diarrhea with dehydration, malaria with anemia, pneumonia, tuberculosis, and diabetes. ^bPostpartum hemorrhage. Source: Adapted from Ref. 38

	Nigeria	Uganda	Kenya	Tanzania	Senegal	Source
Financing						
Government health expenditure as percentage of GDP (%)	0.88	1.90	1.87	NA	2.22	Ref. 24
Inputs (macrolevel)						
PHC facility density (per 100,000 population)	18.3	12.8	14.8	13.9	8.4	Ref. 39
Health worker density (per 1,000 population)	2.52	0.03	1.14	0.66 ^a	1.08	Ref. 25
Service delivery (microlevel)						
Minimum equipment (%)	20	78	76	78 ^b	53 ^b	Ref. 27
Drug availability (%)	49	40	67	76 ^c	78 ^c	Ref. 27
Vaccine availability (%)	76	—	—	—	—	Ref. 27
Minimum infrastructure (%)	23	48	47	19	39	Ref. 27
Absence rate (%)	34	52	27	21	20	Ref. 27
Correctly diagnose common conditions (%) ^d	37	56	72	57	34	Ref. 27
Correctly manage maternal and neonatal complications (%) ^e	17	19	45	—	—	Ref. 27
Time spent with patients (minutes)	10	—	—	29	39	Ref. 27
Caseload per day	2.8	10	8.7	—	—	Ref. 27
Outputs						
Immunization coverage, receiving all eight basic vaccinations (%)	25	52	71	75	74	Ref. 21
Outcomes						
Under-five mortality per 1,000 live births	105	55	49	49	47	Ref. 39

^aSource: Ref. 40

^bFor minimum equipment, only three items were considered (i.e., weighing scale, thermometer, and stethoscope) in Tanzania and Senegal as opposed to two additional items (i.e., refrigerator and sterilizing equipment) in Nigeria, Kenya, and Uganda.

^cFor drug availability, only 15 drugs were considered in Tanzania and Senegal as opposed to ten priority drugs for children and 16 priority drugs for mothers in Nigeria, Kenya, and Uganda.

^dSeven conditions, including five common conditions (i.e., acute diarrhea with dehydration, malaria with anemia, pneumonia, tuberculosis, and diabetes) and two maternal and neonatal complications (i.e., postpartum hemorrhage and neonatal asphyxia).

^ePostpartum hemorrhage and neonatal asphyxia.

TABLE 7. Primary Health Care System Performance: Country Comparison

primary health care service is low, with 2.8 outpatient visits per health worker per day (Figure 6).

Inputs

PHC Facilities

In contrast to the experience in other countries, the data show that the network of PHC facilities does not appear to be a critical factor affecting availability of care in Nigeria. According to the Federal Ministry of Health, there are 18 PHC facilities per 100,000 people, which is higher than that in other comparison countries (i.e., 14.8, 13.9, 12.8, and 8.4 PHC facilities per 100,000 people in Kenya, Tanzania, Uganda, and Senegal, respectively). Figure 7 shows the number of public facilities per geographic area. (Nigeria consists of 36 states and the Federal Capital Territory, 774 local government areas [LGAs], and 9,596 wards.) In total, there are 23,584 public PHC facilities. Though the

actual number of public health clinics and public health posts falls below the targets set by the National Primary Health Care Development Agency, the number of public PHC facilities at the ward level is greater than the recommended level (Figure 7). In addition to public PHC facilities, there are 8,290 private PHC facilities and 200,000 PPMVs, as indicated by the National Bureau of Statistics in Nigeria.²⁹

Workforce

Nigeria's health workforce density is above the African country average level.³⁰ Per WHO Global Health Workforce Statistics, Nigeria had a total health worker density of about 2.52 per 1,000 in 2008, which is slightly above the WHO minimum standard for health care worker density of 2.3 per 1,000 population. Nigeria produces a large number of CHEWs and junior CHEWs each year, with CHEW training

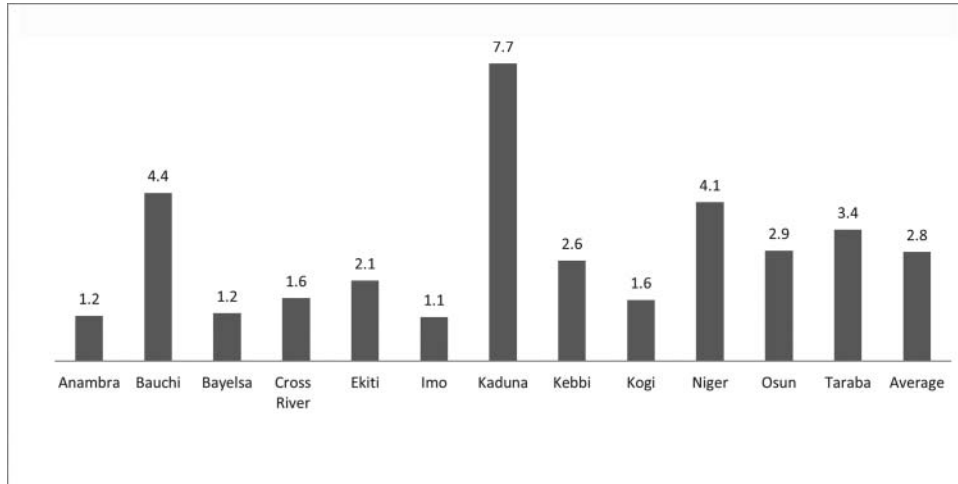


FIGURE 6. Average Outpatient Visits per Health Worker per Day. Source: Adapted from Ref. 38

schools present in nearly every state. Unfortunately, many CHEWS are either unemployed or working in the private sector and the PHC system may not be getting full value out of the investments the government of Nigeria makes in developing health workers. And even when CHEWs make it

into the public sector, it is often the case that the CHEWs are found in health facilities and do not spend time in the community. As a result, health promotion and prevention receives little attention.^[b] The issue in Nigeria is not so much an absolute lack of human resources but a need to

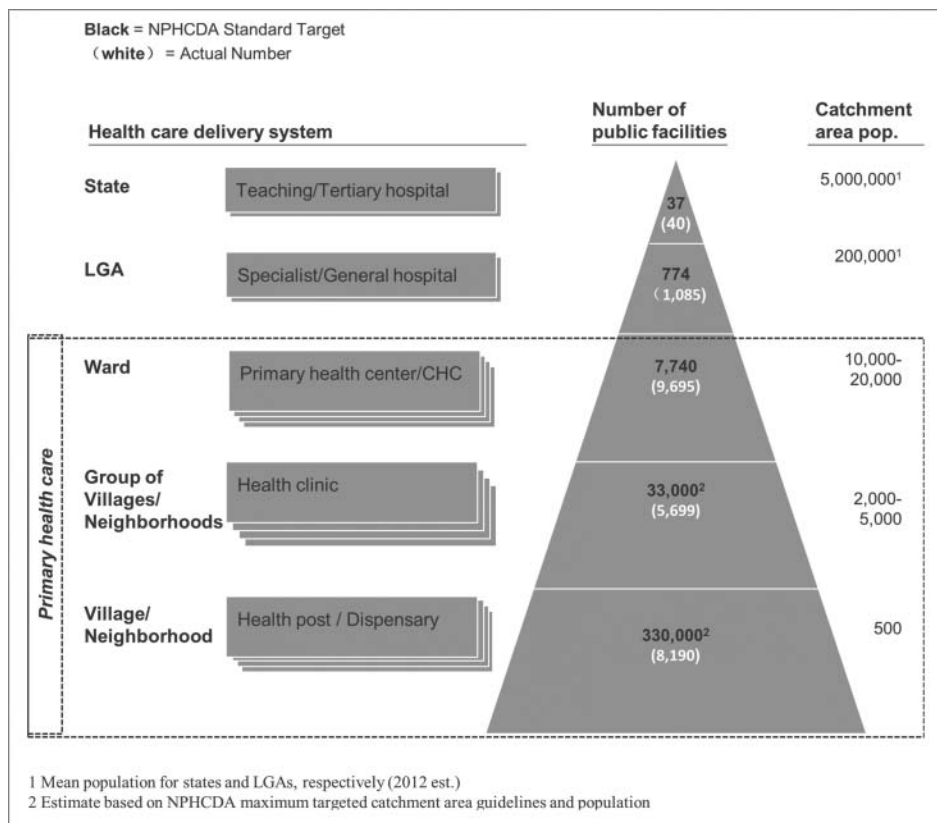


FIGURE 7. Primary Health Care Facilities, Targets, and Actual Numbers. Source: Adapted from Ref. 41

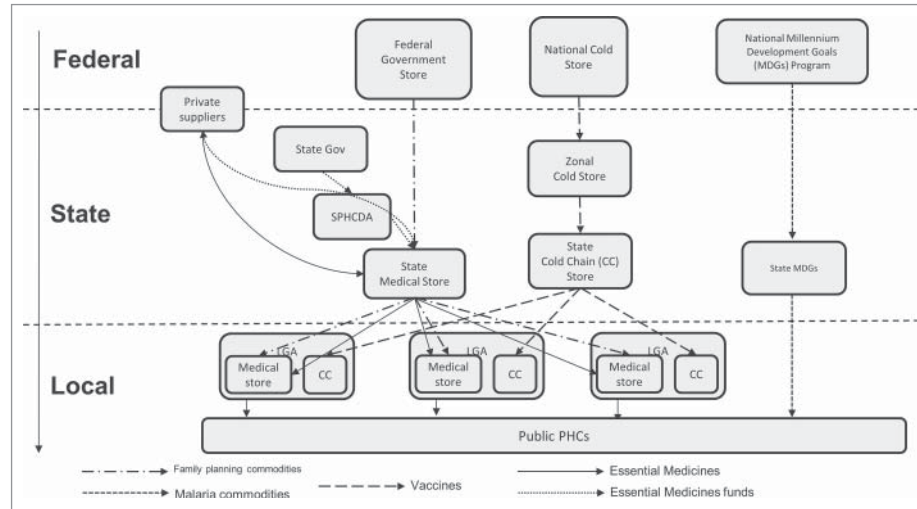


FIGURE 8. Supply Chain Channels in Bauchi State. Source: Authors' analysis

more effectively use the health workers in the system and to ensure that they work competently and efficiently. Absent other changes, simply adding health workers without addressing issues of deployment, motivation, and effectiveness likely would add little value. We discuss these issues in the Service Delivery section and the System section.

Supply Chains

Segmented supply chains^[e] present challenges for PHC facilities (Figure 8). The facilities are supplied by as many as five different uncoordinated supply channels (e.g., essential medicines, family health commodities, vaccines, Millennium Development Goal commodities, vaccines), each with different operating models, business practices, and implementing partners.³¹ For instance, medical stores and cold chain stores are often separate geographically. Improvement can be made to consolidate transport and storage capacity across different parallel supply chains.

SYSTEM

At the root of Nigeria's input and service delivery challenges are challenges in systems, particularly health financing and governance. In this section, we explore the system components of the PHCPI framework to identify key root causes of underperforming PHC in Nigeria.

Financing for Primary Health Care

In 2013, Nigeria health care spending was relatively low, with total health expenditure (THE) at about 109 USD per capita, which is only about 3.7% of GDP.³² Government

health expenditure comprised only 24% of THE in 2013.³² Most Nigerians finance health care with out-of-pocket (OOP) payments. OOP payments totaled 73% of THE in 2013.³² In addition, collapsing oil prices have created a more fragile fiscal environment for both federal and state governments, restricting their capacity to fund PHC. Beyond the lack of financial commitment from the government, the system itself is highly fragmented and inefficient.

Flow of Public Finance: Split Responsibilities and Split Financing Across Federal, State, and LGA Governments

The apportionment of government funding overall is determined largely by the Constitution, with a funding rule that apportions funds across federal, state, and LGA governments. In addition, responsibilities for the health systems are split, with the federal government largely responsible for teaching hospitals and medical education, state government responsible for state tertiary and secondary-care hospitals, and LGAs responsible for PHC. The LGA system has been part of the Nigerian fiscal structure since 1976 and the LGAs are expected to play a leading role in the provision of basic services, such as PHC and primary education with allocation from the federation account to the local government joint account.

Revenue flows from the federal government to the states and LGAs as unconditional transfers and expenditure decisions are taken independently at each level. The federal government does not have a constitutional mandate to compel other tiers of government to spend in accordance with its priorities. Each state is led by a governor, who gets lump sum funding directly from the federal treasury without earmark for health, let alone PHC. State governors' commitment to health is thus a critical factor.

LGAs receive funds from the federation account through the channel of the state. As a result, financial and political constraints at the state level may lead to uncertainty in the flow of funds to LGAs. In many instances the flow of funds from the state to the LGA is limited, constraining local spending capabilities. Often, LGAs receive just enough funding to pay staff salaries, leaving little to no resources for drugs, supplies, and maintenance.

PHC financing thus depends primarily on state government and the willingness of the state governor and in part on the LGA chairman for allocating the budget for health. In addition, LGAs have limited revenue generation prospects on their own. Thus, the end result can often be low levels of funding for PHC at the LGA level.

Salary as First Priority in Budgeting and Budget Execution

Using SDI survey data, it was estimated that 95% of funding for PHC from LGAs goes to salaries, leaving little for other critical categories (i.e., drugs, transport, cleaning products, etc.). Fifty percent of facilities receive no cash and over 85% receive less than the minimum estimated (100 USD/month) to cover basic operational expenses. This can barely support actual service delivery activities and has had a deleterious effect on PHC functions, especially for activities like

outreach that require local level expenditures for transport and per diem.

In Kaduna State, at the LGA level, a majority of funding (7.90 USD out of 8.30 USD per capita) goes toward salaries, and most facilities receive little to no funding for supplies, drugs, and basic infrastructure (0.40 USD on average; Figure 9).

Furthermore, in expert interviews, we find that health worker salaries are considered the first payment priority with close to 100% budget execution rates, with state control of payment for skilled health workers (levels seven and above) and LGA controls of payment for unskilled health workers (levels one to six). The health workforce has grown over time with increasing salary rates due to the strong bargaining power of health worker unions. Comparatively, capital investments are often shaped by governors and LGA chairmen, and only 50%–60% of overall capital budgets are executed. The lack of available funds for drugs and operational expenses causes facilities to rely on internally generated revenue and charge user fees, which are high and present virtually everywhere.

Overreliance on Cost Recovery Mechanisms

The heavy reliance on user fees is reflected in the overall health spending statistics for Nigeria. In terms of inputs in

	Overall health budget		PHC budget	
	Total, USD millions	Per capita, USD	Total, USD millions	Per capita, USD
National	1,828	11.1	155	1.0
State (Kaduna example)	92	13.0	6	0.9
LGA (Kaduna example)	59	8.3	59	8.3 (7.9 on salaries; 0.4 on non-salary recurrent costs)

Same as total LGA health budget as LGAs are responsible for PHC delivery

FIGURE 9. Example from Kaduna State. In addition to using Service Delivery Indicator survey data,³⁸ we refer to PATHS 2 Kaduna health care financing resource tracking report³⁶

public PHC facilities, for drugs, OOP payment is the primary funding source, along with seed funding from states, LGAs, as well as donors and funding from federal agencies and donors for drug supply in vertical programs. OOP is the only funding source for operational expenses at the facility level. Comparatively, LGA joint account is the primary funding source for salaries and capital investments.

The low level of public funding for drugs leads to an overreliance on cost recovery mechanisms such as revolving drug funds, which shift the burden of financing health care onto the poor and result in a reduction of access for those who need it most.³³ Drug revolving funds (DRFs) were established across much of the country after the 1987 Bamako Initiative as a form of cost recovery that could support a sustainable supply of basic drugs at the facility level. In theory, after an initial capital investment (usually from donors or the government), PHCs fund future purchases through sales of those drugs and user fees. By eliminating intermediaries, DRFs limit drug markups to 2% to only cover the cost of inflation. However, in practice, the initial capital investment is frequently depleted due to poor management capacity and a lack of financial transparency and accountability.³⁴ Even if the DRF finances are managed well, user fees are still required to cover the cost of drugs. In some states, stocks were depleted and local governments failed to replenish them. DRFs are reported to have encountered other problems including poor accounting practices at the facility level (e.g., aggregating revenue into a single account without ring-fencing funds for drugs), incentives for providers to prescribe irrationally and sell non-DRF drugs procured on the open market, and shifting provider attention from preventative services to curative.

By design, LGA PHC departments are in theory responsible for procuring drugs with funds from the LGA budget and providing them to facilities. In turn, public PHC facilities are meant to remit user fees to LGAs for redistribution. However, in reality the majority of facilities rely on internally generated revenues to fund drugs and operations, which leads to high user fees. State and LGA agencies do not regulate or enforce public PHC user fees, leaving facilities to independently set and change fee schedules. Internally generated revenue are generally not tracked, leaving state and LGA health agencies with little visibility on current expenditure patterns or future needs of PHC facilities.

Governance

Highly Fragmented Governance Structure

A major challenge for PHC is a fundamentally fragmented governance system by design, from the federal down to the community level (Figure 10).

At the federal level, the Federal Ministry of Health provides policy and program direction, in which the minister of state for health is in charge of primary health care and the minister of health is in charge of tertiary health care, vertical programs, national health insurance, and human resources. The National Primary Health Care Development Agency is responsible for implementing policies and programs in coordination with the Federal Ministry of Health.

At the state level, the state governor exercises significant authority over major health policy and financing issues. The State Ministry of Local Government Affairs (SMoLG) hires, manages, and directly pays high-level PHC staff (through the State Local Government Service Commission). The State Ministry of Health (SMoH) is responsible for policy and program direction but in practice has limited power, with little direct authority over funding, which is the authority of SMoLG.

At the LGA level, the LGA chairman directly oversees the LGA PHC department (instead of SMoLG or SMoH) and controls the local budget for PHC. The LGA PHC department, headed by the LGA PHC coordinator, is responsible for LGA-level program management (i.e., budgeting, measurement and evaluation, and supervision). However, they have limited direct control over PHC facility staff, given that high-level PHC employees (levels seven and above) are hired and directly paid by SMoLG's Service Commission.

At the community level, the ward and village development committees are the primary bodies for community involvement in primary care. They can provide accountability on behalf of end users. However, they are not in place in all communities and are not always functional.

Overlapping Responsibilities and Undefined Authorities

The challenge in governance is further complicated by differences in the formal roles of entities and their informal roles in practice, given overlapping responsibilities and undefined authorities across and within levels.

At the state level, there are two parallel organizations with responsibility for PHC: SMoH and SMoLG. Each has different but related responsibilities: SMoH oversees policy and program direction, whereas SMoLG budgets, hires, manages, and pays health workers staffed at PHCs. Although this appears like a clear divide on paper, in practice there are close interdependencies—for the SMoH to initiate or facilitate a PHC program, the SMoLG has to be on board as the entity in control of the staff who would directly implement. For training of PHC personnel, SMoH and the State Local Government Service Commission act independently, which contributes to sub-optimal human resource deployment.

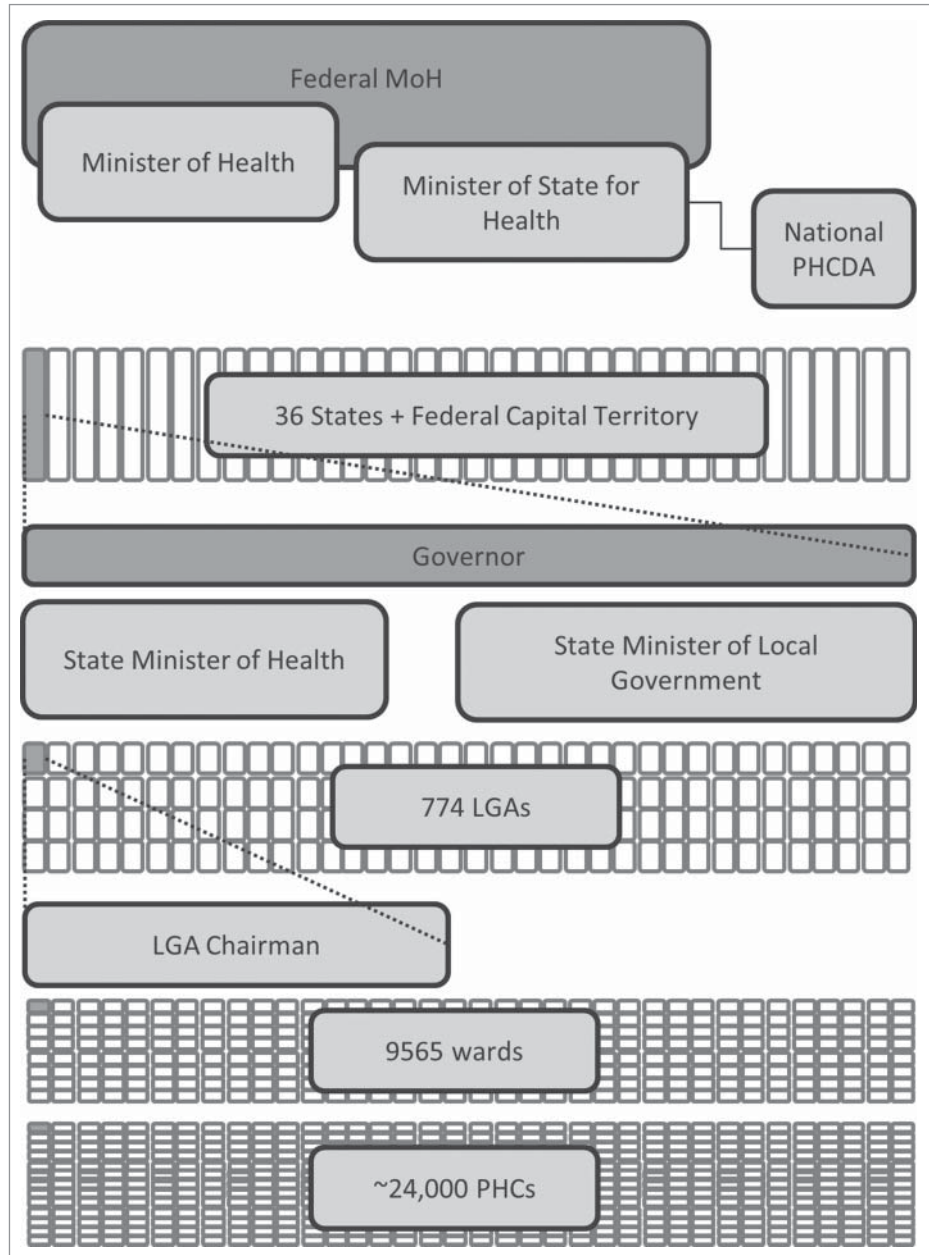


FIGURE 10. Governance Structure. Source: Authors’ analysis

Neither SMOH nor SMOLG has direct control over the PHC departments at the LGA level. They can only coordinate with and support their counterparts in the LGAs, because each LGA PHC coordinator is accountable to the LGA chairman. LGA PHC departments are officially the main entity managing the public PHC system and the coordinator is responsible for LGA-level program management (including budgeting, measurement and evaluation, surveillance) but can only support the PHC officials to comply and perform. The PHC coordinator, however, does not have

direct control over skilled PHC staff (levels seven and above)—they are technically employed by the State Local Government Service Commission, which pays their salaries directly without any funds flowing through the LGA. LGA PHC departments have influence over unskilled PHC workers (levels one to six) and often lack operational funding necessary to conduct supportive supervision of facilities.

The LGA chairman, an elected official, controls decisions about how much to invest in PHC services. This makes primary health care centers potentially vulnerable to shifting

political interests due to high turnover within the LGA leadership.

These governance factors are at the heart of why Nigeria faces the financing, supply chain, and service delivery challenges presented previously.

Inefficiencies in Human Resource Deployment and Management

Compared to frontline worker cadres in other countries, CHEWs and junior CHEWs in Nigeria are well trained, with two to three years of formal schooling. In addition, there are vast numbers of underemployed CHEWs and junior CHEWs who volunteer their services or informally work in public and private facilities. Further, there are numerous examples of both overstaffed and understaffed PHC facilities due to maldeployment.

Lack of mechanisms for performance management is another root cause of low productivity and poor quality of primary health care offerings. Given the strong bargaining power of health worker unions, salaries are fixed at the state level and not linked to the quantity or quality of service delivery. Staff promotions are based on tenure and formal qualifications more than performance. Misaligned incentives are driven by the disconnection of salaries, promotions, and job security from performance, resulting in health workers facing few consequences for nonperformance and patients ultimately experiencing the effects of provider absenteeism, poor skills, and limited number of patients consulted each day as well as limited time spent with each patient.

Weak incentives underscore the need for strong supportive supervision, which is also insufficient. State and LGA agencies also do not receive sufficient supervision from levels above. SDI surveys show that 23% of facilities receive supervision infrequently (9% receive visits one to two times a year) or not at all (14% receive no supervision visits). For facilities that do receive more frequent supervision, 61% of them did not receive written feedback from the supervisors, which limits the effect of such visits.

To summarize, we have revealed that Nigeria has relative abundance of primary health care centers, reasonable geographic access to PHC, and relatively high health worker density. However, the performance of PHC system in Nigeria is hindered by financing and governance issues that result in (1) lack of financial access to PHC due to high user fees in the public sector; (2) lack of infrastructure, drugs, equipment, and vaccines at the facility level; (3) poor health worker performance, including high absence, low competence, and low productivity; and (4) poorly performing supply chain

systems. Insufficient public finance for PHC and policies that result in high user fees and poor governance at the macro- and facility levels are critical causes of the underperformance exhibited.

BENCHMARKING NIGERIA'S PHC PERFORMANCE

To benchmark Nigeria's PHC performance, we use a cross-country comparison of PHC indicators in areas of finance, inputs, service delivery, and outputs (Table 7). With regard to financing, Nigeria has the lowest government health expenditure as a percentage of GDP (0.88%) compared to the other four African countries. For inputs, Nigeria has the highest facility density and health worker density in comparison. For service delivery, Nigeria ranks second lowest when it comes to drug availability, minimum infrastructure, and diagnosis accuracy. Nigeria has the second-highest absence rate and time spent with patients is relatively low. Nigeria has the lowest percentage of facilities with minimum equipment and the lowest caseload among five countries. The underperformance in these indicators extends to key outputs and outcomes, where Nigeria is lowest in immunization coverage (25%) and highest in under-five mortality (105 per 1,000 live births).

POLICY LANDSCAPE

The Nigerian federal government has put forward a number of reforms designed to improve PHC performance. Primary Health Care Under One Roof (PHCUOR) is a policy designed to reduce fragmentation in the delivery of primary health care services, which involves the integration of all PHC services under one authority. The PHCUOR policy includes several key components.²¹ First, it ensures the integration of all PHC services delivered under one authority. It does this at the state level by bringing financing for PHC and administrative control under the State PHC Development Agency. Second, it establishes a single management body with adequate capacity to control services and resources, especially human and financial resources. Third, it clusters authority, responsibility, and accountability at the state level. Next, it emphasizes the "three ones" principle: *one* management, *one* plan, and *one* monitoring and evaluation system. Fifth, it outlines an integrated and supportive supervisory system. Lastly, it details an effective referral system between and across the different levels of care.

In 2014, Nigeria established the National Health Act to address some of the health financing challenges in the country. The Act establishes a basic health care provision fund to

be financed from the federal government annual grant of not less than 1% of its consolidated revenue fund; grants by international donor partners; and funds from any other source. Out of the fund, 50% is allocated to the provision of a basic minimum package of health services to citizens, as per eligibility requirements through the National Health Insurance Scheme; 20% is allocated to the provision of essential drugs, vaccines, and consumables for eligible primary health care facilities; 15% is allocated to the provision and maintenance of facilities, equipment, and transport for eligible primary health care facilities; 10% is allocated to the development of human resources for PHC; and 5% is allocated toward emergency medical treatment.³⁵ The lack of infrastructure, drugs, equipment, and vaccines might be partially addressed by financing.

One of the other promising policy reforms underway in Nigeria to address financing, governance, and accountability issues is results-based financing. Under this initiative, still in the pilot stage, payment for services is based on actual service delivery production. This provides stronger incentives for service delivery production at PHC and by creating a resource flow to the PHCs independent of client user fees, it is hoped that this initiative can reduce facility dependence on fees collected from clients. Early results from the districts where results-based financing is being piloted are promising, with large percentage increases in service delivery volumes though from a very small base.

A final policy reform underway is the SOML—P4R (Saving One Million Lives—Program for Results). Under the SOML—P4R, the government of Nigeria (using in part financing from a World Bank loan), will provide financing to states conditional on attainment of key results. In theory, this policy reform will serve to better align the actions of the states with policy direction set at the national level. The design is sound and so hopes are high that this policy can help the federal government to improve the functioning of the PHC system but the policy is only just beginning, so a full discussion and assessment will have to be the subject of another paper.

CONCLUDING REMARKS

The PHCPI framework provides a useful lens into the Nigerian primary health care system. In summary, Nigeria has a relative abundance of primary health care centers, reasonable geographic access to PHC, and relatively high health worker density. However, the performance of the PHC system in Nigeria is hindered by key system, inputs, and service delivery challenges. Nigeria's story shows that adequate numbers of health facilities and health workers are necessary—but not

sufficient—for a strong performance of PHC. Indeed, important factors like governance, financing, supply chains, and service delivery capacity play a central role in strengthening primary health care systems. We have identified six key system causes of underperformance in Nigeria: limited federal government, strong state governments, and constrained LGAs in public financing; salary as first priority in budgeting and budget execution; overreliance on cost recovery mechanisms; a highly fragmented governance structure; overlapping responsibilities and undefined authorities; and poor human resource deployment and management. Taken together, these factors reflect two overarching system-level challenges—financing and governance—that are key root causes of the dysfunctions observed in the PHC system in Nigeria.

Compared to peer countries in Africa (i.e., Uganda, Kenya, and Tanzania, and Senegal), Nigeria ranks the lowest or second lowest in all PHCPI indicators but has high levels of health facility density and health worker density, which are often thought to be the major cause of underperformance of PHC systems.

There are important limitations in this article with regard to data comparability and unaddressed inequality. With regard to data comparability, among the five surveyed countries, Nigeria is more comparable to Uganda and Kenya than to Tanzania and Senegal. This is partly because the SDI survey was first piloted in Tanzania and Senegal in 2012, followed by Uganda and Kenya in 2013 and Nigeria in 2014. Most of the indicators are comparable. However, for minimum equipment, only three items were considered (i.e., weighing scale, thermometer, and stethoscope) in Tanzania and Senegal, whereas in Nigeria, Kenya, and Uganda, two additional items (i.e., refrigerator and sterilizing equipment) were captured. For drug availability, only 15 drugs were considered in Tanzania and Senegal as opposed to ten priority drugs for children and 16 priority drugs for mothers in Nigeria, Kenya, and Uganda. We accessed raw SDI data for analysis for Nigeria; however, we cited the results from SDI country reports for Tanzania, Senegal, Uganda, and Kenya. Data analysis methods might vary among the five countries. With regard to inequality, we have not addressed urban–rural, private–public, or north–south disparities or inequality by education, state, and geopolitical zone. Inequality is an important topic for future research.

This analysis reveals that the system areas of governance and financing are at the core of PHC underperformance and sheds light on where implementers and policy makers in the Nigerian health care system can target reform efforts. Though developing and/or implementing the policy reforms

underway in Nigeria (i.e., PHCUOR, the National Health Act, results-based financing, and SOML—P4R) are important steps in addressing key root causes of underperformance and highly laudable, all of these policies are still “works in progress” and so the final story is not yet complete. Moreover, even if these policies are successfully implemented, there are likely still policy gaps to fill (e.g., drug revolving funds and user fees). With a new government just taking office in 2015, it will be important for health officials to advocate strongly for policies and implementation strategies that improve PHC and to ensure that they are on the political agenda. In the complex, decentralized operating environment of the Nigerian government, policies focusing on addressing systemic governance and financing challenges have great potential to improve PHC performance. These policy priorities might stimulate the PHC market and bring the country closer to a high-performing primary health care system.

NOTES

- [a] In 2014, a revised GDP series was published following a statistical rebasing exercise (the base year changed from 1990 to 2010). Nigeria has emerged as Africa’s largest economy, with a nominal GDP increase of 89% in 2013.
- [b] Personal communication, Dr. Benjamin Loevinsohn, World Bank Chief for Nigeria Health, Nutrition and Population, 2/7/2014.
- [c] Complex and opaque funding flows also make quantifying resource allocation for PHC very difficult. Existing data are highly imprecise and piecemeal. We are expecting more comprehensive and accurate data from the resource tracking grant to the World Bank by the Bill & Melinda Gates Foundation.
- [d] Personal communication, Dr. Muhammed Ali Pate, former State Minister for Health, Nigeria.
- [e] The Supply Chain section comes largely from insights provided by David Sarley, Senior Program Officer, Bill & Melinda Gates Foundation.

DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

No potential conflicts of interest were disclosed.

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